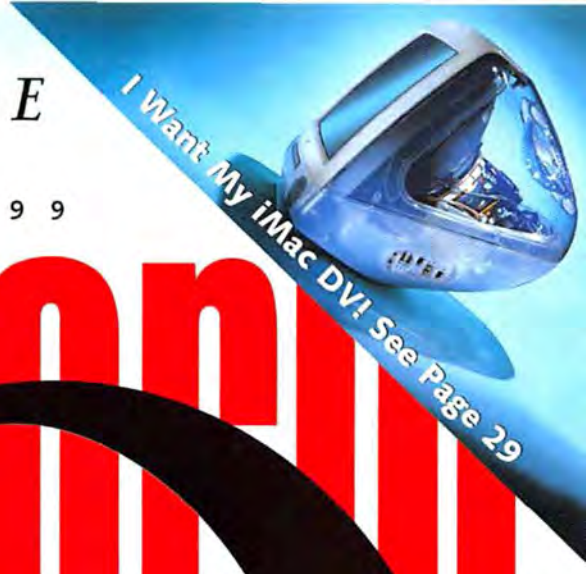
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DECEMBER 1999

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EXCLUSIVE REPORT

Mac OS 9

SHERLOCK GROWS UP

SPEECH GETS REAL

MULTIUSER SUPPORT ARRIVES

TCP/IP UNSEATS APPLETALK

SEE PAGE 70

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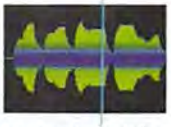
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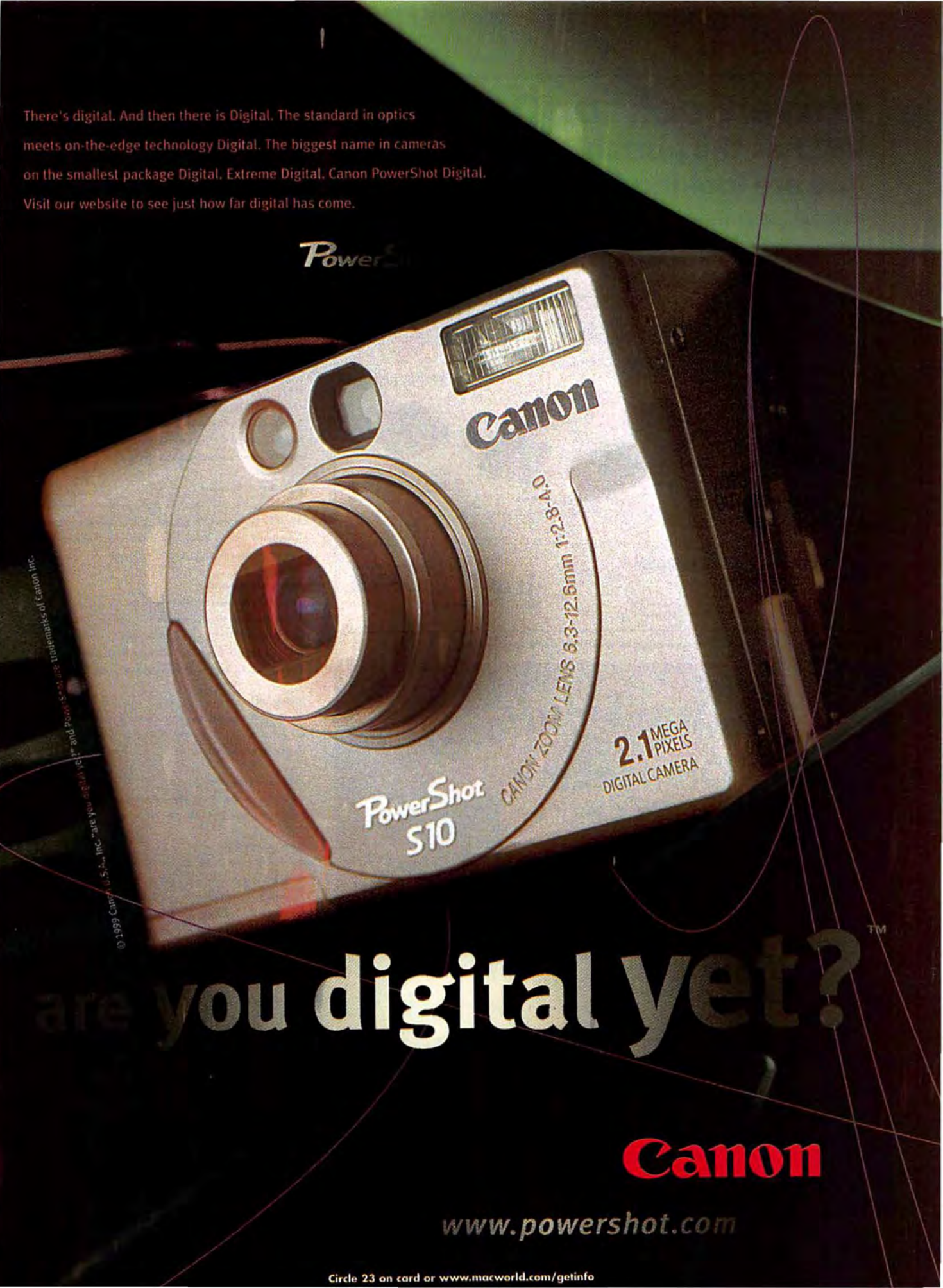
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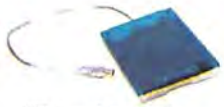
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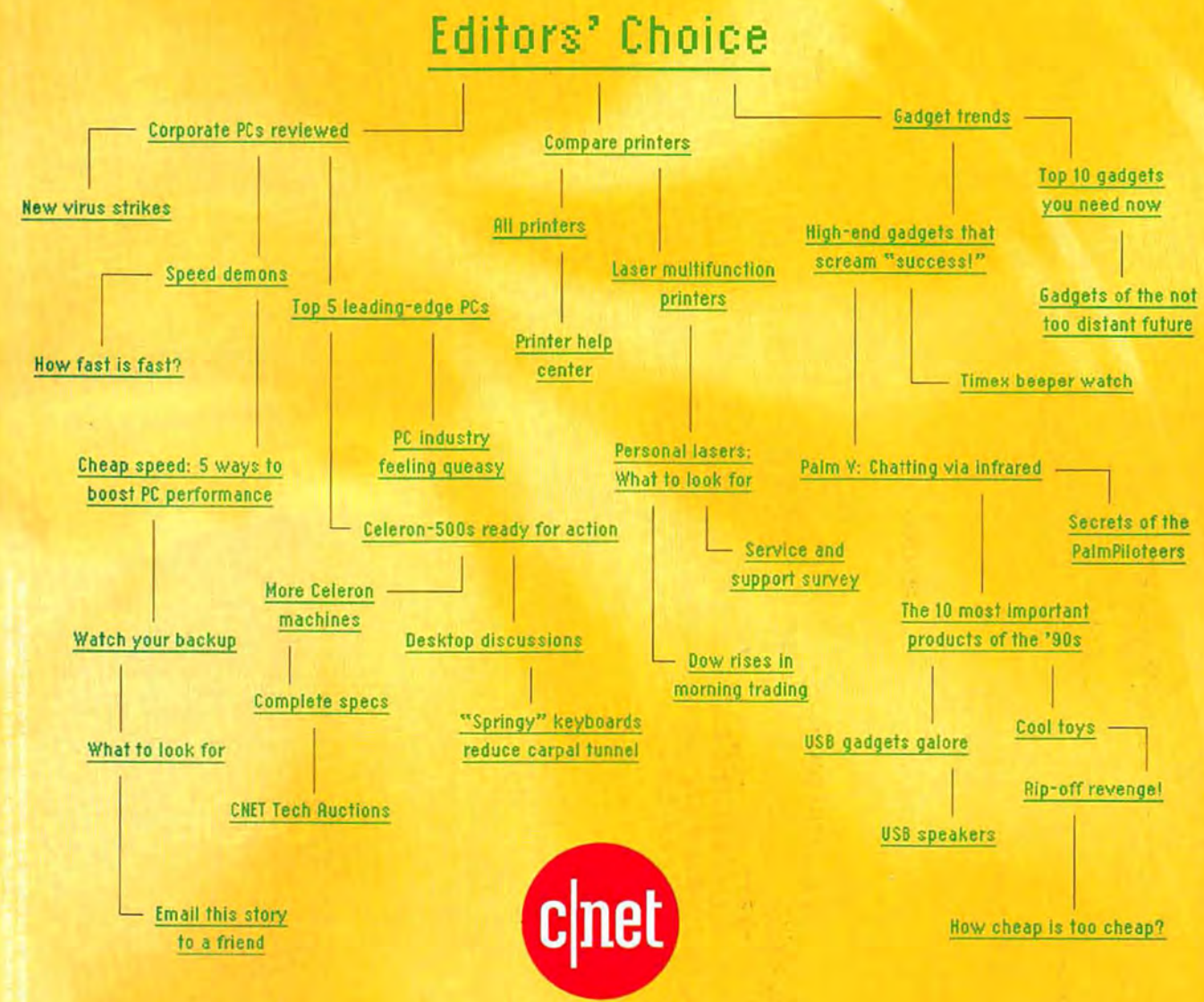


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Letters

Puzzling Pixels

IN "DIGITAL CAMERAS DEVELOP," Deke McClelland compared 14 megapixel digital cameras (September 1999). The table accompanying the story listed 7 cameras that had a maximum image size of 1,280 by 960 pixels, but the CCD resolution of the Casio QV-7000SX was listed as 1.32 million pixels, that of the Epson PhotoPC 750Z as 1.30 million, and that of the others as 1.31 million. Could you please explain why the CCD resolutions differ?

TOMMY YOUNG
Midland, Michigan

We publish the CCD resolutions provided by the vendor. When possible, we try to get precise vertical and horizontal measurements for CCDs, but often this information is not available. In the cases listed here, we suspect that the manufacturers rounded the CCD resolutions in different directions.—Deke McClelland

For Want of a Slide Scanner

I WAS VERY GLAD TO SEE *Macworld* review some slide scanners ("Slide Scanners Show Off," September 1999), after several years of seeing flatbed review after flatbed review. I'm sure the slide scanners you reviewed work just fine for many people, but from an archivist's point of view—where collections of thousands of Kodachrome slides exist as parts of historic records—those scanners might as well be flatbed scanners.

What we really need is for a slide-projector manufacturer to modify its mechanism so that an entire carousel or tray of slides can be scanned, descriptions added, and databases generated, all in a single process. This is the only realistic way to



DAVE CUTLER

catalog a large collection of slides—unless you hire half a city and spend half a decade performing the cataloging.

Of course, this machine would also have to cost about $30 for it to have wide appeal, which probably explains why no one has produced one yet.

GLENN LAUBUAGH
Milwaukie, Oregon

We can help with at least part of your problem. Our Editors' Choice, the Nikon Super Coolscan 2000, supports an optional "auto slide feeder" that allows you to batch scan up to 50 slides at a time. Contact Nikon for more information (800/526-4566, www.nikonusa.com).—Ed.

Berating the Bronze PowerBook

THE REVIEW OF THE POWERBOOK G3/400 left this reader confused and disappointed (September 1999). The system was awarded five mice, *Macworld*'s highest rating. But the review also indicated that the new PowerBook may have some stability problems related to USB. How can a product have potential stability problems and still earn *Macworld*'s highest rating? How would the PowerBook G3/400 be rated if it didn't have any potential stability problems?

Anyone who has been using Macs for a while knows that Apple's customer support has been as legendarily cavalier as the company's products have been intuitive and trendsetting. In my opinion, this type of evaluation worsens the problem. Awarding a machine with potential problems an outstanding rating sends Apple the wrong message. It says that we love Apple products even if they're flawed. It inspires complacency; Apple is given no incentive to strive to create better products. If a flawed PowerBook gets an outstanding rating, why bother to make it better?

When Apple hits the mark, it deserves to be praised. When it misses, it needs to know about it. Heaping praise on flawed products does Apple, and in turn users of Apple products, no good.

BLAINE GRAHAM
Solvang, California

Beyond Resolution

IN HIS REVIEW OF COLOR INK-JET printers, including the Hewlett-Packard DeskJet 882C and 895C (September 1999), Kevin Mitchell wrote that HP doesn't quote the maximum color resolution of its printers. I want to let you in on some information: HP doesn't quote color-resolution numbers because its printers use a new technology called PhotoRet II, which layers ink dots to create images as well on regular paper as on high-quality paper. There are times when

continues



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PhotoRet II prints at a much higher density than a 1,440-by-720-resolution printer, and times when it does not. Epson and Canon use a technology that presses ink dots next to each other to create color tones. This makes images look good from a distance, but up close you can see the different color drops.

JASON SU
Los Angeles, California

Steal and Steal Some More

I READ DAVID POGUE'S COLUMN "Stealing for a Better Tomorrow" (*The Desktop Critic*, September 1999), and I couldn't agree more. Microsoft has stolen so many things from Apple that I have lost count. How Apple didn't prevail in court is beyond me.

I have a few more Windows features that would help Mac users immensely. First, the OS should show the icons of all running programs. I know that the new detachable window is used for this, but I can never see it. Second, you should be able to eject disks by pressing the eject button. I have never been able to explain to new Mac users why they have to drag disks into the Trash to eject them. Third, Apple should include a real sound interface. I know there are many shareware and software titles for this, but why can't Apple separate the Monitors & Sound control panel into real AV controls with adjustable bass and treble? I have many more suggestions, but these are a start. I'm sure Mac OS X will be a leap forward, but maybe Apple will listen to Mac users like me and improve the new OS even more.

THOMAS SHERRY
via the Internet

IN "STEALING FOR A BETTER TOmorrow," David Pogue says that the Mac OS should integrate the Programs menu from Microsoft Windows because it lists every program in the hard drive, saving a lot of time. Indeed, this idea is good, but it actually became possible a long time ago. All you have to do is make an alias of your hard drive and drop it in the Apple Menu Items folder in your System Folder. Once you've done that, rename the alias the same name as the hard drive on your desktop.

STEPHEN BRAWNER
Medford, Oregon

Making an alias of your entire hard drive is a popular suggestion—many readers write in with this tip—but doing so can really slow down the works if you have a folder-filled hard drive. But that's not really the point. It's true that you can simulate, with effort, many of the nice features in Windows; I was hoping to suggest features that could be automatic and built-in.—David Pogue

Visions of Piracy

ANDREW GORE DID A GOOD JOB OF enumerating the positives of MP3 and demonizing music publishers, whom he identifies as the giant middlemen, but he ignored a few serious problems ("Music for the Masses," *The Vision Thing*, September 1999). For example, what about piracy? How do songwriters—who earn even less from record sales than artists do—protect their work in a system so plagued with piracy potential? Would Mr. Gore like to forfeit his writing income to the millions of people who love free stuff? And would he like to eliminate publishers such as Mac Publishing and take his chances alone on the Internet?

NORMAN DANIELS
Jersey City, New Jersey

Fantastic Realmz

I WAS DISAPPOINTED WITH CHRIStopher Breen's "Chasing Cheap Thrills" (*The Game Room*, September 1999). Many people are discovering the Mac these days, and newcomers could be left with the impression that most shareware games are unimaginative rip-offs of familiar arcade and board games. Breen recommends clones of Asteroids, Centipede, Galaxian, Qix, Pac-Man, Hearts, Gin Rummy, Klondike, Cribbage, Spades, Othello, Scrabble, Donkey Kong, Asteroids (again), Defender, Frogger, Battlezone, and DigDug.

Fantasoft's excellent role-playing game Realmz did receive some backhanded praise. But Realmz is one of the great success stories in shareware games, and it deserves better treatment than he gave it. I've been enjoying the game for years now, and it gets better with each version. Unlike in most commercial games, the scenarios can be replayed many times, and with Fantasoft's Divinity you can create your own scenarios with customized story

continues

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lines, weapons, characters, and armor.

I think he could have done a better job guiding gamers to the wealth of original and fun shareware games for the Mac.

JOHN RAWLINS
via the Internet

Apple's Unknown Detector

I WANT TO MAKE *MACWORLD* READers aware of Apple's best-kept secret —Apple Data Detectors (ADD). ADD combines a control panel, an extension, and an AppleScript. It allows you to apply AppleScripts to selected text via contextual menus. You can highlight a block of text and ADD will search for certain types of data, such as e-mail addresses, Web addresses, newsgroups, U.S. cities, U.S. states, and even monetary values. After searching for specific information, you can witness the real magic of ADD: it allows you to apply AppleScripts to the data.

For example, you can highlight a paragraph that includes numerous e-mail addresses. You can add any or all of them to your address book automatically, or you can reply to any or all of them. You can also have ADD find all the U.S. cities in a paragraph, and then automatically search for their zip codes via the Internet.

ADD is the first simple and practical use of AppleScript. There are a bunch of ADD scripts available, and it is fairly simple to write your own. Best of all, ADD is available free at Apple's Web site (www.apple.com/applescript/data_detectors/).

Unfortunately, Apple created this great tool and then hid it away and forgot about it. ADD has the potential to become as poplar as Sherlock, but Apple needs to market this amazing resource and make users aware of it.

Macworld, help me share with your readers this great tool. This is an excellent utility that people need to know about.

JIM BUTLER
San Diego, California

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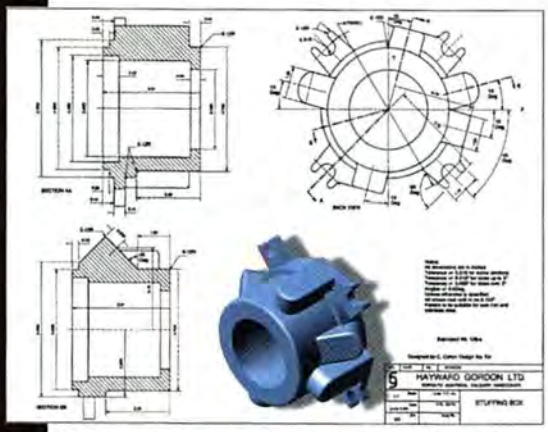


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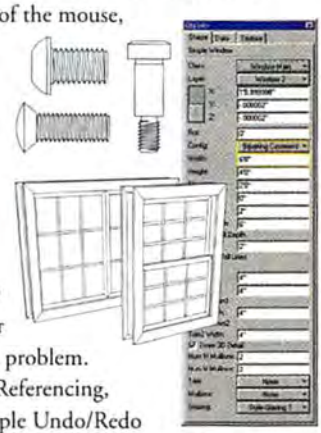
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The Vision Thing

by Andrew Gore

The Nature of Magic

iMAC DV AND MAC OS 9 INCREASE THE MAC'S EASE-OF-USE EDGE. BUT IS THAT ENOUGH?

SOME THINGS ARE SO obvious that when they finally arrive, instead of saying, "Wow!" or, "Cool!" you end up saying, "Well, it's about time!" The three new iMac models Apple debuted on October 5 (see *News*, in this issue) are just such things. Their features—a starting price under $1,000, DVD-ROM drives and FireWire ports on the high-end models—are so obvious that Mac Web sites have been speculating about them since the original iMac debuted. But just because something is obvious doesn't mean it's easy.

I'm sure delivering a fully equipped and completely redesigned iMac for $999 *wasn't* easy. Nor is it a simple matter to add DVD and FireWire for another $300. And then, on top of that, to ship a major new release of an operating system that Apple and the computer industry at large had written off just two years ago? Well, that's got to qualify as a bona fide miracle. And this from a company that just a couple of years ago was the brunt of some pretty choice lightbulb jokes.

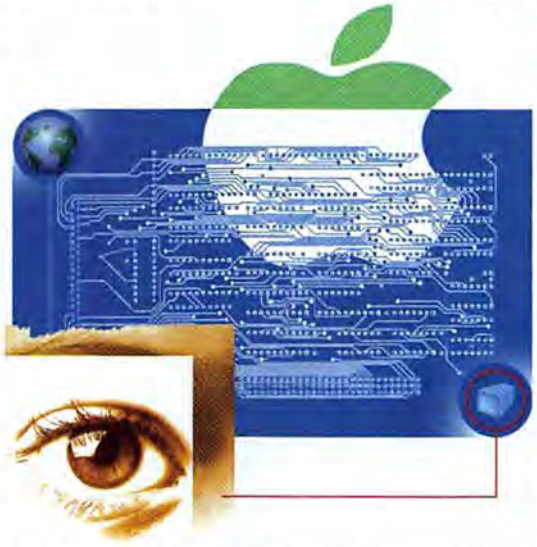
Grateful Dead

Let's face it: the iMac is nothing more than a translucent space heater without the Mac OS. The eOne (that Windows-based iMac knockoff that got so much press earlier this year) is about as useful as a $10 Rolex when you turn it on and put it to the test. Why? Because no matter how much it looks like an iMac, it doesn't use the Mac OS.

That's why, amid all the hubbub about the new iMacs, we shouldn't overlook the arrival of Mac OS 9, the OS that will appear on every new Mac by the end of the year.

True, OS 9 will not be an automatic upgrade for everyone—there need to be features so compelling to users that they can justify plunking down $99 for yet another OS update. For me, what will make OS 9 a "must-have" upgrade is its way of using the Internet natively, rather than relying on AppleTalk.

You might say, "Well, Mac OS has had support for TCP/IP for years." That's true. But now it's fully integrated into the Mac OS, and by that I mean "into the Mac OS interface." I can now share files with my Macs at home from the *Macworld* offices as easily as I used to share files with a Mac across the hall. Forget setting up an FTP server in order to shuttle files back and forth—now you can simply turn on File Sharing and check the Use TCP/IP box. That's it.



JOHN RITTER

There may be flashier features in Mac OS 9. But I'll take magically easy-to-use TCP/IP any day.

Easy Does It

Speaking of magic, let's not overlook how much more complex Mac OS 9 makes the Mac (see "Mac OS 9," elsewhere in this issue). I keep trying to imagine my mother setting up and using things like multiple users, the Keychain, encryption, and file sharing.

The iMac has been tremendously successful, thanks in part to its ease-of-use advantages. And the Mac OS is still considerably easier to use than Windows. But is that easy enough?

The answer is both *yes* and *no*. Because Apple has complete control over all Mac hardware and software, it has made the video-editing features of the iMac DV magically simple. Via FireWire, you can hook up cameras in a flash and control them right from your Mac. The iMovie video-editing application that comes on every iMac DV should extend that ease-of-use advantage. It's truly magical when a single product can make something as inherently complex as video editing so simple right out of the box.

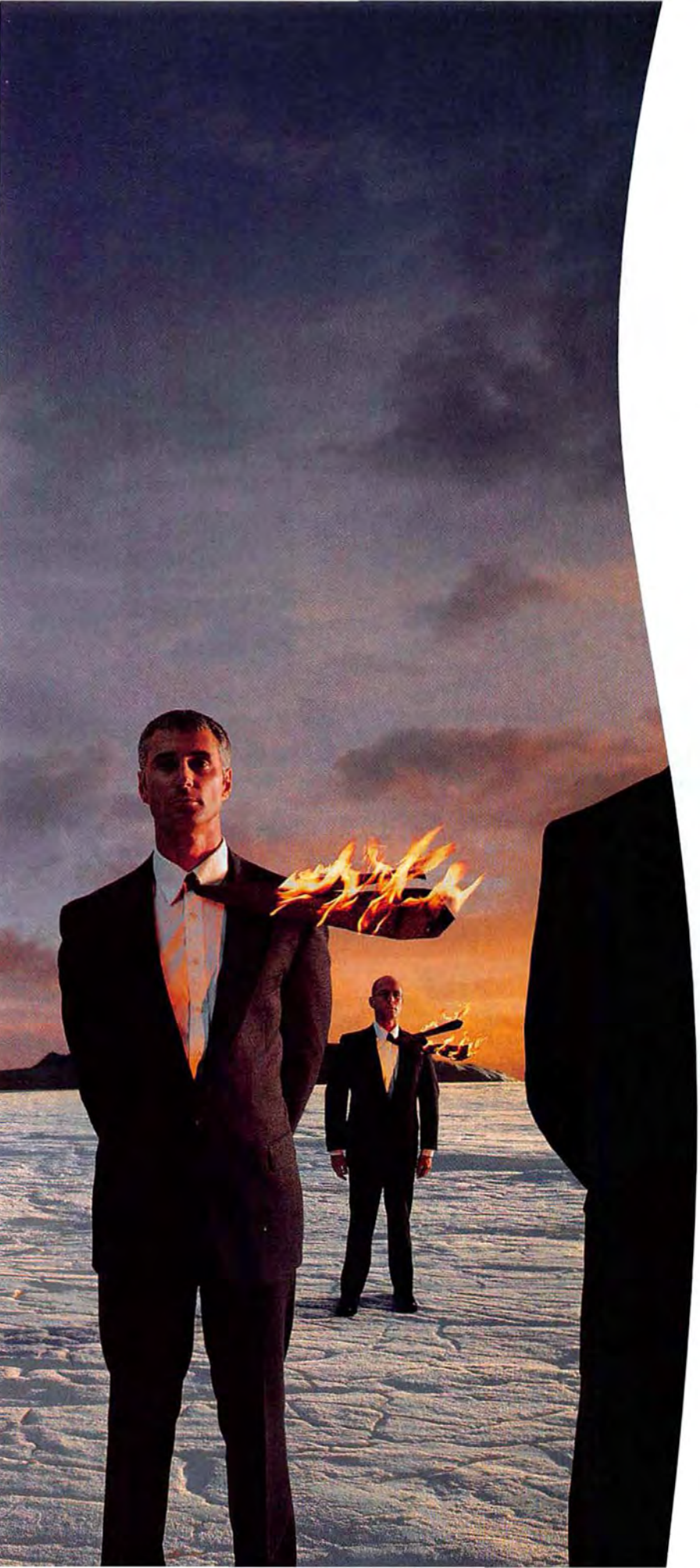
Now all we need is something equally simple for setting up and connecting to the Internet. The success of the iMac notwithstanding, it's *still* too difficult to access the Internet from a computer. And Apple needs to work even harder to improve the way we find files on our Macs, browse a network, set up a multiple-user Mac, and manage our passwords. Mac OS 9 goes a long way toward making these things possible, powerful, and even easy—much easier than it is to do these things on Windows. But that's not enough. Apple needs to start making these things so easy that we can't conceive of a way to make it easier.

Just because Apple is now making it look easy doesn't mean we should take for granted that this is as easy as it can get. Nor can we overlook the finer points of interface design. Because while the Devil may be in the details, so is everything that makes a Mac different from a Windows PC. That's why Apple needs to stop worrying about creating a computer that's easier to use than a PC, and start worrying about making one that's as easy as it can possibly be. **m**

Questions? Comments? E-mail them to Andy at visionthing@macworld.com.



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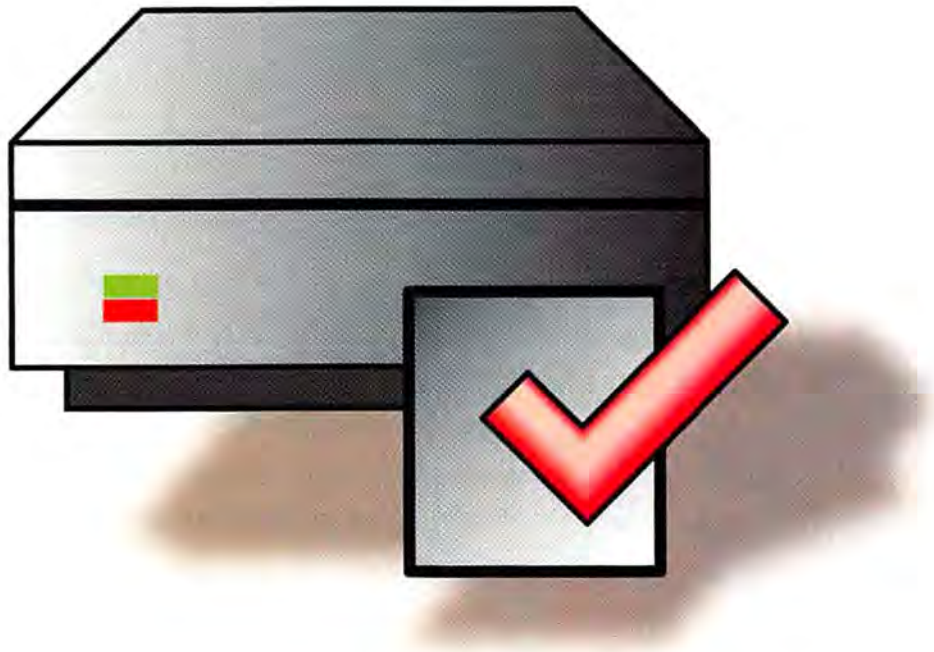


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systems

Apple Launches Next-Generation iMacs

NEW MODELS OFFER ADVANCED VIDEO AND AUDIO FEATURES

by Stephen Beale



Computer or consumer appliance? Apple's new iMac models, which began shipping in October, can claim both labels. With a 100MHz system bus and G3 processor speeds of 350MHz and 400MHz, the latest iMacs offer horsepower comparable to that of a blue-and-white Power Mac G3. But they also sport features you might find in a consumer electronics product, including a speaker system from Harman Kardon and, in the two premium models, dual FireWire ports and a DVD-ROM drive. Indeed, Apple envisions the high-end iMac DV and iMac DV Special Edition as launching pads for a forthcoming "desktop video" boom similar to the desktop-publishing revolution that fueled much of the Mac's initial popularity.

A New Design Apple's new iMac design improves on the old in several ways. Mac gamers will appreciate the inclusion of ATI's Rage 128 graphics chip, which offers a vast improvement in video performance over the previous Rage Pro chip. Apple has ramped up the system bus from 66MHz to 100MHz, matching the speed of the blue-and-white Power Mac G3. Memory is easier to install, and you can use more of it than before—up to 512MB. Apple claims that the speakers, made by Harman Kardon, offer unparalleled built-in audio quality for a computer system; as an option, you can add a $99 Harman Kardon subwoofer designed especially for the iMac. You'll better appreciate the music, thanks to a fanless ventilation system that reduces noise to nearly imperceptible levels. The next-generation iMacs also feature easily accessed connectors for Apple's AirPort wireless network cards. The new iMac has a similar look to the old one, but the enclosure is more transparent, almost like tinted glass—you can easily see the components inside.

The iMac's rebirth, as Apple calls it, also represents a new marketing strategy. Instead of selling one model in five flavors, Apple is offering three models, but only one with a choice of colors. The $999 base model, available only in blueberry, features a 350MHz G3 processor, 64MB of RAM, a slot-loaded CD-ROM drive, and a 6GB hard drive. That configuration should appeal to the most price-conscious consumers, but many users will no doubt be tempted to shell out an

continues

SUZANNE ROADY

Handspring's Visor Takes On Palm

INEXPENSIVE HANDHELD ORGANIZER OFFERS USB, PALM OS COMPATIBILITY

FIRST THERE WERE PC CLONES. THEN (for awhile) there were Mac clones. Now it's Palm Computing's turn to license its operating system. That's right: the first Palm OS clone is here.

The new handheld device, the Visor, comes from Handspring (888/565-9393, www.handspring.com), a company founded by the creators of the original PalmPilot.

Featuring built-in Macintosh support, complete Palm software compatibility, and an innovative expansion slot, the Visor is the opening salvo in Handspring's battle to take over the handheld-computing world. Three Visor models, priced at $149, $179, and $249, will be available.

What's New? The Visor is the first Palm OS–based device with built-in support for Universal Serial Bus (USB). The Visor and Visor Deluxe models come standard with a USB cradle—a serial connection is an option, not the norm. Handspring has also updated some of Palm's built-in applications: the Visor's calculator can perform scientific and financial calculations, the clock keeps time in five time zones, and the datebook can display and forward to-do items.



Expansion The Visor's expansion slot, dubbed Springboard, is open at the rear and top, accommodating odd-size modules that wouldn't fit in a traditional slot. Each expansion module contains all necessary software, which automatically loads when you insert the hot-pluggable card.

Initially, Handspring will offer a Springboard modem, various amounts of memory, and a data-backup module. The latter feature is especially useful if you buy the $149 Visor Solo, which does not include a synchronization cradle. Handspring is working with other companies on possible add-ons, including products for MP3 audio playback, wireless communication, and voice recording. All Visor models feature a built-in microphone.

How It Looks While the Visor's Springboard slot is a leap forward in the evolution of the Palm family, the Visor's look is not. The device has a sharp-edged, boxy feel, and the plastic snap-on lid is a step backward from the flip-open covers on the Palm III, V, and VII series. However, the Visor's buttons, which perform the same functions as those on Palm Computing products, have a more modern look. All Visors include backlit LCD displays, just as Palm's latest models do.

Aside from Handspring's limited improvements, the basic Palm applications haven't changed much since the release of the first PalmPilot. And the Palm software still has data-synchronization problems between Palm devices and Palm Desktop 2.X, the synchronization software you run on your Mac or PC.

Unlike Palm Computing, Handspring includes Mac software in the package. If you have a USB-equipped Mac, the Visor should work with it right out of the box. However, when we tried a prerelease Visor with a USB-equipped Mac, we were unable to get it to work, indicating that the Visor's USB driver software wasn't quite ready. Hopefully, Handspring will have corrected this problem before the product's debut.

At first, the Visor will be sold only through the Handspring's Web site, but the company plans to offer retail distribution in 2000. The $149 Visor Solo and $179 Visor, available in dark gray, feature 2MB of RAM; the latter also includes a synchronization cradle. The $249 Visor Deluxe, available in dark gray, green, orange, blue, and ice, includes 8MB of RAM, a synchronization cradle, and a leather carrying case.—JEFF PITTELKAU

extra $300 for the iMac DV, which features a 400MHz G3 processor, a slot-loaded DVD-ROM drive, a 10GB hard drive, and two FireWire ports. The iMac DV is available in the familiar tangerine, blueberry, grape, strawberry, and lime, but the colors look brighter than the original iMac flavors due to the highly transparent plastic.

The third model, the $1,499 iMac DV Special Edition, features 128MB of RAM and a 13GB hard drive. It's available only in graphite, the same color used in Apple's Power Mac G4.

Both DV models are bundled with Apple's iMovie, an easy-to-use digital-video–editing program that lets you add titles, sound, and transitional effects to video clips. As with Apple's high-end Final Cut Pro software, iMovie can import video directly from a DV camcorder. Apple sees the new iMacs as ideal complements for the increasingly popular camcorders, all of which include FireWire connections.

publishing

Olympus SLR Ups Digital-Camera Ante

2.5-MEGAPIXEL MODEL OFFERS PRO FEATURES

by Stephen Beale

You might flinch at the camera's $1,500 price, but Olympus America (800/622-6372, www.olympus.com) is making a serious bid to regain bragging rights among digital-camera manufacturers with the C-2500L, a 2.5-megapixel, single-lens–

SUZANNE ROADY

reflex (SLR) model with a 3× optical zoom. An SLR lets you view a scene through the picture-taking lens, whereas a point-and-shoot camera uses separate viewfinder and picture-taking lenses.

The camera, slated to ship by the time you read this, is the first to support CompactFlash and SmartMedia cards, for image storage. You can insert one of each and use them in tandem to increase the total capacity. The package has one 32MB SmartMedia card. The camera also has manual focus, exposure, and white-balance options; an autofocus illuminator for low-light situations; and a 43mm threaded lens barrel that accepts standard accessory lenses. A hot shoe lets you connect external flashes, including the company's new FL-40, which was designed for use with digital cameras.



The camera features a ⅔-inch CCD; most other 2-megapixel cameras use ½-inch CCDs, which tend to sacrifice a small amount of tonal range to achieve high resolutions. Maximum image resolution is 1,712 by 1,386 pixels. In burst mode, the camera can capture and store five full-resolution images in three seconds. Curiously, the camera lacks a USB interface; to transfer images, you'll need to use a serial connection or a card reader. Olympus says that it will likely offer a USB card reader as an option.

With such models as the D-600L and D-620L, both of which won *Macworld* Eddy Awards, Olympus had been accustomed to top-dog status in the digital-camera market. However, with the emergence earlier this year of 2-megapixel digital cameras, archrival Nikon stole much of Olympus's thunder by releasing the Coolpix 950, a $999 point-and-shoot model that was a *Macworld* Editors' Choice in a recent roundup (see "Digital Cameras Develop," September 1999). The C-2500L is the first 2.5-megapixel, SLR camera in its price range.

SUZANNE ROADY

printing

Free Printers from Tektronix

GET A FREE PHASER 840 IF YOU MEET MONTHLY VOLUME REQUIREMENTS

by Macworld Staff

What's the catch? Following the lead of companies offering free PCs, Tektronix plans to give away tens of thousands of Phaser 840 solid-ink printers to organizations that agree to purchase a minimum amount of ink from the Tektronix Web site (www.freecolorprinters.com). The 1,200-dpi printer handles paper sizes up to 8.5 by 11 inches and includes 64MB of memory, 200- and 500-sheet paper trays, and USB and 10BaseT Ethernet connections; it usually sells for $3,195. Tektronix launched the promotion before its September announcement that it will sell its printer division to Xerox, but the company says Xerox will continue to offer the free printers.

To get the free printer, you fill out an application on the Tektronix Web site specifying how many pages you expect to print each month. Tektronix will then decide whether your print volume warrants a free printer. You agree to maintain that volume and purchase all of your ink from the Tektronix Web site for a three-year period. After three years, the printer is yours. The deal includes an unlimited amount of free black ink plus free technical support and on-site service.

As part of the agreement, you submit a monthly usage report. You have to pay $75 at the end of any month in which you fail to meet the specified volume; the company says this is still less than you'd pay for a lease. You also have the option of returning the printer. The cost per color page ranges from 5.0 to 8.4 cents.

Fine Print What's in it for Tektronix? It's not just a matter of selling ink: the company wants to generate interest in its solid-ink printers, which it targets at workgroup environments now dominated by color lasers. Tektronix's early solid-ink printers suffered from poor image quality, but the Phaser 840 offers much-better-looking output thanks to a new ink formula and other enhancements.

Xerox Deal A few weeks after Tektronix unveiled the free printer program, Xerox announced that it will pay $950 million to acquire Tektronix's Color Printing and Imaging Division. Tektronix

continues

Product WATCH

Two into One MetaCreations (www.metacreations.com), continuing the consolidation of its product line, has announced **Carrara**, a 3-D–modeling, –rendering, and –animation program that replaces **Ray Dream Studio** and **Infini-D**. Named for the famed Italian marble quarry used by Michelangelo, the software features a Bryce 4–inspired interface that walks you through the 3-D production process. The program supports OpenGL hardware acceleration and includes spline-, vertex-, and metaball-modeling functions; a new, hybrid ray-trace renderer; and physics- and behavior-based animation features. It is scheduled to ship by the end of the year.

G4 for G3 With new G4 systems on the market, can G4 CPU upgrades be far behind? Sonnet Technologies (800/786-6260, www.sonnettech.com), XLR8 (888/957-8867, www.xlr8.com), Newer Technology (316/943-0222, www.newertech.com), and PowerLogix (888/769-9020, www.powerlogix.com) have each announced **G4 upgrades** that will work with a range of older Macs. Sonnet, XLR8, and PowerLogix say they've developed software that allows use of their respective upgrades with blue-and-white G3 systems, which otherwise won't accept them. At press time, Newer said its upgrades would not work with blue G3s. Sonnet offers, on its Web site, software that lets you test a blue G3 system for upgrade compatibility. The vendors expect

continues



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representatives say they anticipate no changes to the free printer program as a result of the acquisition.

publishing

Web Services Simplify Print Procurement

INTERNET SITES LET YOU BID FOR PRINT JOBS

by Stephen Beale

The Internet may not eliminate print, but it's sure having an impact on the commercial-printing business. The latest development is the emergence of Web sites designed to facilitate the relationships between commercial printers and print buyers.

Make Your Bid Some of the print-oriented Web sites —Printbid (www.printbid.com) and PrintMarket (www.printmarket.com), for example—allow open bidding for print jobs. Printbid offers a database of printing companies, allowing you to select which ones you want to bid on a job. There is no charge to the printer or the buyer, but the company plans to offer fee-based services in the future. PrintMarket charges printers a one-time fee to be listed in its database. If you post a job proposal, any printer in the system is free to make a bid.

Other Web services, including Collabria (www.collabria.com), Noosh (www.noosh.com), and MediaFlex (www.mediaflex.com), are designed to simplify workflow and/or job tracking between printers and existing customers. For example,

continues

Product WATCH

to ship their upgrades by the end of the year.

Wagging the Dog? Extensis (503/274-2020, www.creativepro.com), the well-known developer of Adobe Photoshop plug-ins, has changed its name to **Creativepro.com** to reflect a new emphasis on providing products and services through the recently launched Creativepro.com Web site. The rechristened company will continue to develop and sell graphics utilities through a new division, the Extensis Products Group.

Drives to Go VST Technologies (978/635-8200, www.vsttech.com) has introduced a pair of lightweight, **portable hard drives** for USB-equipped Macs. The drives—a $330, 4GB model, and a $430, 6GB model—are each available in black, tangerine, or blueberry. They're scheduled to ship in November. Also new from VST is the **FireRAID Array,** which lets you combine up to four VST FireWire hard drives in a portable RAID array.

CAD Encore Deneba Software (305/596-5644, www.deneba.com) is shipping **DenebaCAD 2,** a new version of the architectural-design software. New features include speedier performance and improved DXF and DWG support; the company says the software translates 2-D, 3-D, and text-object data when importing or exporting DXF files. The $570 package includes Macintosh and Windows versions.—EDITED BY MICHAEL GOWAN

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Macworld

Macworld LAB TEST

Macworld

Collabria allows commercial printers to set up customized ordering systems on its Web site. Printers can then offer the system as an added value for customers, who place orders through a standard Web browser.

Quality Assured At present, Collabria's services are geared to what the firm describes as "templated documents"—common items, such as business cards, with predefined layouts.

In a typical scenario, a printer will place a client's document templates on a Collabria Web page accessible only by that client's employees. Employees with access privileges can then log on, add specified text to a document, and place an order. The printer, in addition to receiving orders, can use Collabria tools to determine the most cost-effective presses and document layouts for incoming jobs. One advantage is that there's no need for preflighting or other forms of quality control: the Collabria system automatically builds a press-ready PDF or EPS file based on a customer's input.

Impresse (www.impresse.com) offers both print bidding and project-management services. You can use its system to request bids from printers who have joined the service. The printer who wins the bid can then use the system to track job status.



publishing

Mac Finally Gets Acrobat Plug-Ins

WINDOWS PDF ADD-ONS GET MACINTOSH DEBUT

by Macworld Staff

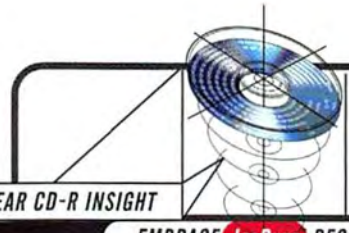
Mac users who felt jilted by the latest release of Adobe Acrobat can take heart: Adobe is finally offering free Mac versions of four key Acrobat plug-ins previously available only in the Microsoft Windows edition. The company posted beta versions of the plug-ins on its Web site in September and said it would offer the final releases after a short period of user feedback.

Web Capture lets you convert Web sites into Acrobat Portable Document Format (PDF) files with links intact. Compare Pages lets you perform side-by-side comparisons of PDF files—say, an original document and an edited version. Digital Signatures lets you authenticate the originator of a document. Send Mail lets you attach a PDF file to an e-mail message.

The plug-ins were originally included in Acrobat 4.0 for Windows, but Adobe held back on developing Macintosh versions until user outcry spurred a change in strategy. However, Adobe says that two other plug-ins are unlikely to appear on the Mac: a set of Microsoft Office macros for creating PDF files, and a utility that allows you to extract formatted tables from Acrobat documents.

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Reviews

Power Macintosh G4/400

GREAT PERFORMANCE,

BUT FASTER SYSTEMS AWAIT



ARNOLD TSOLEO

SOMETHING OLD, SOMETHING new, something borrowed, but no longer blue . . . it's Apple's 400MHz Power Mac G4, the first of three Power Mac systems driven by the speedy PowerPC G4 processor. Apple combined the old and new by placing a G4 CPU on a G3 motherboard and wrapping it all in a sleek silver-and-graphite enclosure. The system delivers great performance—especially considering the $1,599 price tag—and the handsome color scheme will appeal to professional users who might have considered the previous design a bit garish.

Although the real speed demons aren't scheduled to appear until later in 1999, when Apple releases 450MHz and 500MHz models, this is a lot of computer for $1,599. Along with the 400MHz G4 chip, the base system includes 64MB of RAM, a 10GB Ultra ATA hard drive, a 32× CD-ROM drive, a 56-Kbps internal modem, and an ATI Rage 128 graphics accelerator. We performed our comparison tests on a system with 128MB of RAM; the extra 64MB will set you back about $90.

As with the blue-and-white G3 systems, you also get a FireWire port, a 10/100BaseT Ethernet port, and two USB ports. But Apple has removed the ADB port, so forget about using that old mouse or keyboard unless you add a USB-to-ADB adapter. That's a tempting thought, because the Power Mac G4 has the same compact keyboard and hard-to-handle round mouse bundled with the blue-and-white systems, albeit with the new color scheme. (Fortunately, many companies sell replacement keyboards and mice, and some offer inexpensive ergonomic attachments for the mouse.) Aside from precluding the use of older input devices, the lack of an ADB port could create problems if you run software that uses a hardware lock for copy protection.

A Peek Inside

The minitower enclosure resembles that of the blue-and-white systems, with curved handles and a prominent Apple logo on the side. But the new silver and graphite colors—and Apple's removal of the large *G3* moniker on the side—give the G4 a much classier look than its predecessor.

As with the G3 systems, getting inside the G4 is a cinch: just pull on a small, round handle, and the case opens up, providing easy access to the motherboard and other internal components.

Inside the case, the Power Mac G4/400 is nearly a carbon copy of a blue G3 system. You get three standard 33MHz PCI slots plus a 66MHz PCI slot for the ATI Rage 128 graphics card, which is preinstalled with 16MB of video memory.

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OUTSTANDING: ●●●●● VERY GOOD: ●●●● GOOD: ●●● FLAWED: ●● UNACCEPTABLE: ●

Macworld LAB TEST

New Chip, Old Architecture

Macworld Lab tests revealed that some Photoshop filters get a big performance boost from the G4's Velocity Engine when the AltiVec extensions are loaded, while other tasks show minimal performance gains with or without it.

Best results in red. *Reference system in italics.* **Photoshop times are in seconds. Bryce render times are in minutes:seconds.**



*Not applicable; MetaCreations' Bryce 4 has not been updated to support Velocity Engine.

Behind Our Tests

We tested each system with Mac OS 8.6, 128MB of RAM, a 2MB system disk cache, and virtual memory disabled. We performed Photoshop tests with a 30MB file. For the Bryce test, we rendered a scene at 640-by-480-pixel resolution. For detailed information on our tests, see the review online at www.macworld.com/1999/12/reviews/. **—Macworld Lab testing supervised by Jeffy K. Milstead**

Four RAM slots can hold up to 1GB of SDRAM; the system uses the same 3.3V PC-100 DIMMs found in blue-and-white G3 models.

The major internal difference, of course, is the 400MHz G4 chip, which you immediately notice due to the large heat sink. The chip features numerous speed enhancements, most notably Velocity Engine (Apple's brand name for Motorola's AltiVec technology), a 128-bit vector-processing unit that's well suited to accelerating CPU-intensive tasks such as applying Adobe Photoshop filters, 3-D rendering, and video compression. Although some of the speed enhancements will boost performance in any application, software must be rewritten to take advantage of Velocity Engine.

Decent Performance

To gauge the G4's performance benefits, Macworld Lab ran a series of common Photoshop 5.5 operations on the 400MHz G4 system and on a 400MHz G3, each with 128MB of RAM. The G4 includes two plug-ins that allow Photoshop to take advantage of Velocity Engine. One, AltiVec PS Core, is designed to accelerate a wide range of Photoshop functions. The other is a version of the Lighting Effects filter optimized for Velocity Engine. We wanted to see how much Velocity Engine affected performance, so we conducted the Photoshop tests both with and without the plug-ins. We also rendered a complex, 640-by-480-pixel scene in MetaCreations' Bryce 4, which has not been upgraded to support Velocity Engine; Bryce's CPU-intensive ray tracing is a particularly good test of processor speed.

Even without the Velocity Engine plug-ins, each Photoshop function we tested ran a little faster on the G4 than on the G3 (see "New Chip, Old Architecture"). When we installed the Velocity Engine plug-ins and repeated the tests, we saw substantial performance gains on some operations and relatively modest gains on others. For example, with Velocity Engine enabled, the Lighting Effects filter ran about 3.5 times as fast and the Despeckle filter about twice as fast. However, Velocity Engine had no effect on the Watercolor filter (not shown). The RGB-to-CMYK conversion ran about the same on both systems, with or without Velocity Engine.

In our Bryce test, the G4 was only slightly faster than the G3. The G3 rendered our scene in 26 minutes, 14 seconds, and the G4 in 24 minutes. However, it's a safe bet that most 3-D–graphics applications will get a big performance jump when they're rewritten to support Velocity Engine.

Our tests were largely designed to gauge processor speed, but we were pleasantly surprised to see that the new system also offers faster disk performance. For example, the G4 far outpaced the G3 when saving a 30MB Photoshop file. We didn't expect to see a big jump in disk performance, because the G4 uses an Ultra ATA drive instead of the Ultra Wide SCSI drive found in the G3's high-end configuration (low-end and midrange G3s use Ultra ATA drives). However, the new drives feature several speed enhancements to accommodate the 66-MBps ATA interface, which will make its debut in Apple's forthcoming 450MHz and 500MHz G4 systems. The 400MHz system uses a 33-MBps interface, but the G4/400 still benefits from some of the drive enhancements, such as a 2MB hardware disk cache (versus the 512K cache found in the older models).

You can expect better overall performance from the forthcoming 450MHz and 500MHz systems, which will feature a new architecture that includes a faster memory bus, support for up to 1.5GB of RAM, an internal FireWire connection, and a high-speed AGP port for the display adapter. The new systems will also include connections for Apple's AirPort wireless-networking cards and will even be capable of functioning as AirPort base stations.

Macworld's Buying Advice

By grafting the new chip onto what is essentially a G3 system, Apple is providing G4 performance in an affordable entry-level model. If that's all your budget will allow—or if you must have a G4 *now*—the 400MHz system makes sense. However, power users should wait for the 450MHz and 500MHz systems, which will take better advantage of the G4's groundbreaking performance.—STEPHEN BEALE

RATING: ♦♦♦♦ **PROS:** Fast; affordable. **CONS:** Uses older system architecture. **COMPANY:** Apple Computer (800/795-1000, www.apple.com). **COMPANY'S ESTIMATED PRICE:** $1,599.

InDesign

PROMISING NEW LAYOUT PROGRAM WON'T KILL QUARK

DESKTOP PUBLISHING ON THE Mac has long involved two stalwarts: the powerful but clumsy QuarkXPress, with its frustrating modal dialog boxes, function-key shortcuts, and fixed-size palettes, and the limited Adobe PageMaker, which combines an awkward interface with a feature set that has remained all but static for the past decade. Using either program will take you back to the 1980s quicker than putting on a Van Halen album.

Adobe's new page-layout program, the much hyped InDesign 1.0, is at once thoroughly modern and hopelessly behind the times. Better known to many readers by its code name, K2, InDesign gets an A for interface and innovation, a B for the scope of its features, and a D for its excessive hardware requirements. Its interface is everything a modern graphics program's should be—streamlined, well organized, and customizable. And InDesign adds a new generation of formatting enhancements that go well beyond anything in other publishing programs. However, although InDesign demands about twice as much computing power as does QuarkXPress, the latter still offers a wider array of features and has spawned a thriving cottage industry of third-party XTensions.

Having been billed as a Quark killer, InDesign can't help but disappoint. It's not quite the sequel to PageMaker we've all been waiting for, and it sure as heck isn't going to kill XPress, but it should breathe some life into the stale world of page composition and production (and give XPress some much needed competition).

Immediately Intuitive

How you feel about InDesign's interface will depend on what you're used to. If you work primarily in QuarkXPress, you'll be frustrated by InDesign's sometimes similar, sometimes unique approach. If you spend much of your day in Adobe's popular graphics programs, Photoshop and Illustrator, or you learned PageMaker before QuarkXPress, you may feel comfortable inside the program the first time you use it.

Whichever program you've been using, you'll find navigating through InDesign a delight. You hop from page to page in almost exactly the same ways you do in XPress. You can zoom and scroll using Adobe's standardized keyboard shortcuts and select each individual tool from the keyboard. If for some strange reason you prefer XPress's more haphazard system of keyboard equivalents, you can customize InDesign to match. Finally, the shortcuts in the Mac and Windows versions are key-for-key identical. If you work on one type of machine at home and another at work, that's a distinct advantage over XPress, in which a significant minority of the keystrokes change depending on which platform you're using.



Pick a Character, Any Character Of the 227 characters in Times, a Type 1 typeface, fully 10 percent (highlighted in yellow) are inaccessible from inside most Macintosh programs. InDesign 1.0 lets you get to all of them.

The interface isn't perfect, however. Some of the keyboard tricks break down when you're in text mode—for example, if you try to select a tool by pressing a letter key when text is active, you end up typing a letter instead. You have to get in the habit of ⌘-clicking to deactivate the text and *then* pressing the shortcut key to switch tools. Worse is the path-editing environment, which (among other things) prohibits you from selecting and editing more than one anchor point at a time—ironic, given that one of InDesign's siblings is Illustrator.

Type Has a New Friend

Although recent versions of QuarkXPress and, to a lesser extent, PageMaker have expanded each program's feature set, the resulting documents haven't looked significantly better. New printing technology has helped create smoother, more colorful output, but looking at a page, you'd never know if it was created in the modern QuarkXPress 4.0 or the ancient PageMaker 2.0. It's too early to predict, but you'll probably be able to distinguish between a document created in XPress or PageMaker and one produced in the more elegant InDesign. The reason is InDesign's collection of cutting-edge typographic capabilities.

High on the list of formatting features is multiline composition, which balances word and letter spacing to give lines in a paragraph consistent weight. In every other program on the planet—XPress and PageMaker included—type is hyphenated and justified one line at a time. This means one line may be tight, the next loose, the next tight, and so on, giving your text an erratic appearance that impedes legibility. InDesign can look ahead and balance up to six lines at a time, so text appears more or less homogeneous. If you're used to manually hyphenating text in short documents, multiline composition can save you an hour or more per job. If you spend more time laying out long documents, your pages will look significantly better—particularly when the text is fully justified. Either way, the feature is a godsend.

Second in InDesign's innovative hit parade is optical kerning, which automatically spaces letters based on their size and shape. Whereas standard metric-based kerning operates exclusively on predetermined pairs of letters, optical kerning can resolve spacing between any two characters. InDesign does not support XPress's custom kerning tables, but my experience has been that with optical kerning, you don't need them.

InDesign can hang punctuation, so that quotation marks, commas, em dashes, and other lightweight symbols extend beyond the text-box boundaries—useful for visually balancing columns. The program substitutes *fi* and *fl* combinations with ligatures and replaces reduced capitals with the appropriate small-caps characters from a designer-approved set of fonts. When you're using a multiple-master font with an optical-size axis, InDesign automatically scales the font for the type size you've selected—an old hot-metal technique that promotes legibility. And you can select any character included in a font, even if it's not accessible from the keyboard; for the first time, Macintosh users can access—from a layout program—prebuilt fractions, the multiply symbol, and other characters hidden inside every Type 1 typeface (see "Pick a Character, Any Character").

Features and Performance

Although InDesign mops the floor with XPress in the usability department and tosses in some interesting new formatting features, it's not for everybody. I personally believe InDesign to be the better application, but there's enough missing to dissuade XPress users from switching to InDesign.

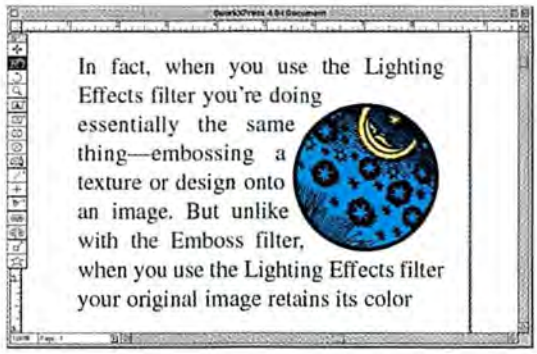
Let's look at what InDesign does right. Multiple undos have been around since 1987, yet both XPress and PageMaker limit you to just one. InDesign has no patience with this early-1980s mentality, giving you as many as 300 undos—far more than you're likely to need. You can import TIFF and JPEG images with clipping paths and preview EPS illustrations at virtually unlimited resolution. You can create master pages based on other master pages; when you make changes to the parent, the children update automatically. Guides are treated as objects, so you can easily copy, paste, and delete them. And InDesign can export PDF files without using Acrobat Distiller; it can also open documents and templates created in XPress 3.3 and 4.0 and PageMaker 6.5 (though the documents won't necessarily look the same as they did in the original program; see "Switching Apps"). The downside is that once you save a document in InDesign, you can't go back—there's no way to export to a foreign format.

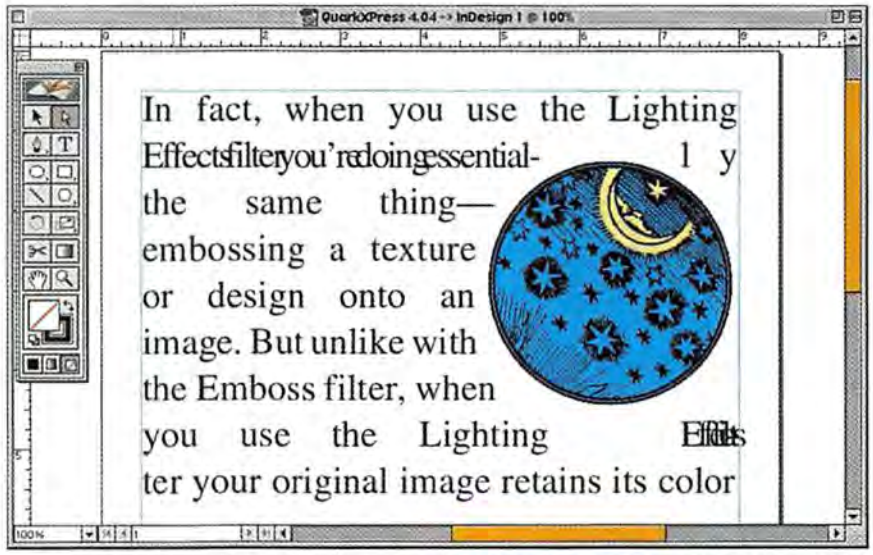
More bad news: InDesign lacks one of PageMaker's best features—a story editor for easier text editing. You can't create text along a path, as you can in XPress. Trapping features are weak; the only automated trapping functions require the use of a PostScript 3 RIP that includes Adobe's in-RIP trapping feature. You can't automatically create tables of contents or indexes, nor can you join multiple documents into a book. Finally, InDesign's color controls need some rethinking. Although you can create gradient strokes, there's no eyedropper for copying color attributes and no way to drag and drop color swatches among palettes. To create a gradient between two tints of a spot color, you have to first create the tints as separate swatches. And there's no way to mix two spot colors inside a single object.

If all that doesn't turn you off InDesign, its system requirements might. On the Mac, the minimum requirements are a PowerPC 604 CPU, OS 8.5 or later, and at least 48MB of RAM. On the PC, you'll need a Pentium II CPU with either Windows 98 or NT4 with Service Pack 4. Out of the three Macs and four PCs in my office, only one of each could run InDesign before I upgraded the system software. If the design departments I've toured are any indication, Adobe has been exceedingly unrealistic in appraising its customers' resources and needs.

Macworld's Buying Advice

As it stands, InDesign will likely make a small initial impression on the desktop publishing market, and even that may be due more to resentment for Quark than to a groundswell of enthusiasm for InDesign. I have no desire to see QuarkXPress die—it would be bad for competition—but I must admit I'll be using InDesign. I not only happen to like it better but also expect it to ultimately take over the design market—after some necessary improvements.—DEKE McCLELLAND





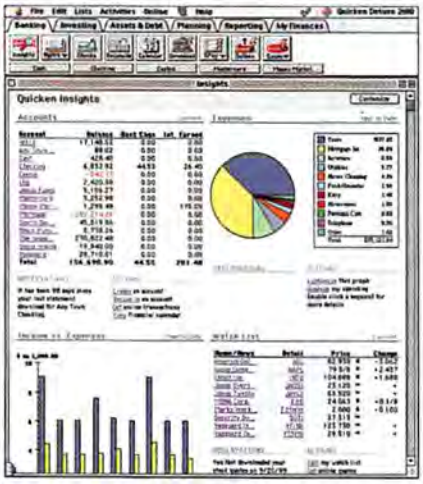
Switching Apps InDesign 1.0 can open documents created in QuarkXPress 3.3 through 4.04, but you'll have to make adjustments. When we opened an XPress document containing text wrapped around an image (top), InDesign preserved the formatting but not the run-around boundary. This error results in a radical text shift.

RATING: ●●●½ **PROS:** Familiar navigation tools; consistent keyboard shortcuts between Mac and Windows; unique multiline-composition and optical-kerning features; multiple undos. **CONS:** Lame path tools; no trapping or long-document features; outrageous system requirements. **COMPANY:** Adobe Systems (800/833-6687, www.adobe.com). **COMPANY'S ESTIMATED PRICE:** $739.

Quicken Deluxe 2000

GREAT FACE-LIFT, FEW FEATURE IMPROVEMENTS

THE ARRIVAL OF QUICKEN Deluxe 2000 should come as a real relief to Macintosh users. Quicken for the Mac suffered a near-death experience in early 1998, when Intuit announced that it was discontinuing the product; a quick negotiation with Apple revived Quicken Deluxe 98, but by the time the dust had settled, it was too late to produce a Mac version of Quicken 99. Quicken Deluxe 2000 is the first new version Mac users have seen in two years, which is why it's a bit disappointing that this update, although long on user-interface improvements, is so short on substantial feature additions.



Getting Insightful Quicken Insights, new in Quicken Deluxe 2000, lets you gather and analyze your financial puzzle in one convenient window.

A Brand-new Face

Intuit has extensively redesigned Quicken's user interface for this year's model, making it easier to use by putting the most-needed controls in one area. The various financial areas have become tabs on the tool bar; switching tabs shows you tool-bar buttons that apply to just that area. The new Configure Toolbar dialog box makes it easy to add or remove tabs and tool-bar buttons and generally customize Quicken to your liking. And account registers and other windows have received a face-lift; clicking on most column names sorts the contents of a window by that column.

The most noticeable improvement, though, is the terrific Quicken Insights page, a convenient summary of all your financial information. From this page, you can get the big financial picture and evaluate how you're doing in any personal-finance area without having to rummage through separate reports. By default, Insight gives you tables of all your account balances and scheduled transactions, an investment list, a graph of your year-to-date expenses, and a loan summary. You can customize what appears on your Insights page by adding, deleting, or rearranging components. Each component has a display area showing some aspect of your financial world and an Actions area that lets you get more information or do things related to that component. Some components also have an Observations area, where your data is analyzed and helpful suggestions are displayed.

One of the most important changes in Quicken Deluxe 2000 is one users can't see. The program now supports OFX, the online-banking standard used by most banks and credit-card issuers. This behind-the-scenes capability is important; lack of OFX support was the reason Wells Fargo briefly withdrew online-banking services for Quicken 98 users before customer outcry caused the bank to reconsider.

Investment tracking has also been improved; for example, you can now get more information about security prices with the new Download Historical Quotes feature. But some of the new version's features are actually *less* convenient than before. For example, the Debt Reduction Planner in Quicken 98 could read debt balances from your Quicken data file. The same planner in Quicken Deluxe 2000 has been moved to the Web, where it runs slower and requires more data entry. It's also incompatible with Microsoft Internet Explorer 4.5, the Mac's default browser.

Cross-Platform Chasm

The gulf between the Macintosh version and the Windows version of Quicken has narrowed a bit, but it's still there. Although the addition of Quicken Insights for the Mac is useful and welcome, its Windows counterpart has Financial Activity Centers such as Banking, Planning, Investing, and Taxes, each with detailed information and useful charts and graphs. The PC-only Home & Business version, with easy-to-use invoicing and accounts-receivable and -payable features, has long been coveted by Mac-based entrepreneurs. And the tools for researching, tracking, and managing your investment portfolio are far superior in the Windows version.

Windows users can also enter transactions over the Web while they're on the road and download those transactions to their desktop computers when they return. Quicken for Windows' tighter integration with the Internet allows for cool new features such as the ability to download the current values of your home and car, so your net worth is always up-to-date. And the PC version's step-by-step wizards give new users better-quality help with common tasks.

Shortly after Quicken Deluxe 2000 was released, some Mac users reported difficulties converting previous versions' data files. Obstacles included duplicated online-banking transactions, problems downloading Quicken credit-card statements, and difficulties connecting with some financial institutions. Intuit says an updater will soon be posted on the Quicken Web site.

If you're thinking about upgrading, you should be aware that Quicken Deluxe 2000 requires a PowerPC-based Macintosh. Users with 680X0 Macs can get a free upgrade to Quicken Deluxe 98 (Intuit has eliminated the basic version of Quicken).

Macworld's Buying Advice

Although the changes and improvements in Quicken Deluxe 2000 are nice, they won't add up to a must-have upgrade for most users. If you're still using an older version of Quicken, the new version is worth getting; if you're happy with Quicken Deluxe 98, however, you might want to wait and see what next year's model brings.—TOM NEGRINO

RATING: ♦♦♦½ **PROS:** Improved interface; excellent summary page; new investment research features. **CONS:** Upgrading and online-banking bugs; some features are now less convenient; lags behind Windows version. **COMPANY:** Intuit (800/446-8848, www.quicken2000.com). **LIST PRICE:** $60.


OLYMPUS


Moshe Brakha, August 1999

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Norton Utilities for Macintosh 5.0

DIAGNOSTIC AND REPAIR TOOLS ARE MORE STABLE BUT OFFER FEW NEW FEATURES

AT ONE TIME, THE IMAGE OF utilities expert Peter Norton—with sleeves rolled up, ready to work—inspired confidence. That confidence was badly eroded when Symantec waited a year to release a version of Norton Utilities for Macintosh (NUM) compatible with HFS+—a version that, when it finally appeared, was riddled with bugs. Although the latest iteration, NUM 5.0, appears more solidly built than its predecessor, its slim list of added capabilities (and $50 upgrade price) may fail to compel users satisfied with their current copies of NUM to upgrade.



Give It the Boot With Norton Utilities for Macintosh 5.0, you can scan and repair the drive from which Norton Disk Doctor is booted.

Here and Gone

In this latest release, NUM retains its strongest components: Norton Disk Doctor (NDD), the venerable diagnostic and repair application; and Speed Disk, a hard-disk–optimization utility. The three useful data-recovery components—FileSaver, UnErase, and Volume Recover—are also present and accounted for, as are the far less essential components Fast Find and DiskLight. In addition, the CD-ROM includes Norton Disk Editor and Norton Disk Editor +, powerful sector-editing tools that Symantec says should be used only with the assistance of Symantec's tech support.

Just as interesting as the inclusion of these components is the omission of Crash Guard. This extension allegedly helped users avoid lockups when the Mac crashed, politely letting you quit a crashed application and save changes in other applications before restarting. Ironically, many troubleshooting experts maintained that Crash Guard was the cause of more obstreperous behavior than it prevented. Apparently, Symantec came to the same conclusion and, thankfully, sent Crash Guard packing in NUM 5.0.

What's New

Although NUM 5.0 is hardly loaded with new features, the package does contain some welcome additions. To begin with, it now sports a Live Repair feature that lets you repair the disk on which NUM resides, without having to boot from another drive that contains a copy of NUM. The program also now supports FireWire and USB devices. And Speed Disk can optimize B-tree directory structures, which, according to Symantec, increases the efficiency of your hard drive.

Symantec touts a couple of other features that users may find underwhelming. The first is the LiveUpdate component, which automatically takes you to Symantec's Web site and downloads the latest patches for NUM and, if you have Symantec's virus utility, virus definitions for Norton AntiVirus. One can understand the desire to download virus updates, but unless this version of NUM is as shaky as the last, you shouldn't expect to see regular updates to the program. A monthly visit to Symantec's site should be enough to keep you current.

Symantec also claims that repairs made in NDD need not be final. It's true that NDD allows you to create an undo file, but the number of repairs you can undo is limited. In scans where I fixed B-tree errors, incorrect bundle bits, and improper dates, NDD warned that I would be unable to undo each of these repairs. As these are the most common problems users are likely to encounter, one wonders exactly which repairs NDD *will* allow you to undo.

More troublesome than the Undo feature is the fact that the NUM 5.0 CD-ROM won't boot on a third-party CD-ROM drive when you use the traditional method of holding down the C key at start-up. Symantec suggests that in such a case you boot from your hard drive, select the NUM CD-ROM in the Start-up Disk control panel, and then reboot. This is all well and good unless your Mac can't boot from your hard drive—exactly the kind of situation in which you'd require NUM's help.

Although time will ultimately tell, NUM 5.0 feels more solid than the previous version. Running on five Macs—an iMac, a processor-upgraded Power Macintosh 6100, a Power Computing clone, a PowerBook G3, and a 450MHz blue-and-white Power Macintosh G3—it didn't cause the kinds of slowdowns and extensions conflicts we encountered with earlier versions of the program. NDD diagnosed and repaired several problems, and—unlike with all too many previous versions—the repairs stuck. We repeated scans of our drives and didn't have to make the same repair twice. Speed Disk also performed its job reliably, although when we scanned two hard drives in sequence it reported nonexistent problems.

Macworld's Buying Advice

If I were Peter Norton, I'd march down to Symantec headquarters and remark in a carrying tone, "I'm pleased that you've created a seemingly stable version of Norton Utilities for Macintosh, but the added features don't merit a $50 upgrade fee. If you're new to NUM, $100 is a perfectly reasonable price for a competent diagnostic and repair utility, but before we demand 50 smackers for an upgrade, I suggest that we *all* roll up our sleeves and deliver compelling new features."—CHRISTOPHER BREEN

RATING: ❖❖ **PROS:** Can repair disk on which NUM resides; seems more stable than previous version; Crash Guard is gone. **CONS:** CD-ROM won't boot on third-party drives; uninteresting new features. **COMPANY:** Symantec (800/441-7234, www.symantec.com). **COMPANY'S ESTIMATED PRICE:** $100.

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RotoDV

INTERFACE HAMPERS VIDEO EDITOR

ROTOSCOPING IS THE PROCESS of painting on the individual frames of a movie to create special effects or animation. In the digital realm, you can rotoscope with programs such as Puffin Designs' Commotion, Strata's MediaPaint, or Digital Origin's new RotoDV. But although RotoDV provides a good set of tools for basic video editing—adding effects, creating stylized video, or removing unwanted elements, for example—for professional-level work it can't compare with the high-end Commotion and MediaPaint.



Hard on the Eyes RotoDV's palette-heavy interface includes controls for customizing your brushes and for the program's RAM-based playback.

You begin working in RotoDV by importing your source video clips. Movies appear in the Timeline window as a Media Stack. As with the Layers palette in Adobe Photoshop, you arrange video clips in the Media Stack for simple compositing. RotoDV keeps the frames in RAM for real-time playback—essential for quickly determining if a painting effect has worked. This feature requires at least 128MB of RAM and enough disk storage for the cache files.

In addition to source video, the Media Stack can contain any number of paint layers. That makes it easy to keep individual painting effects separate and editable, and your rotoscoping won't affect the source video. However, you can rearrange layers only with the Move Forward and Move Backward commands; dragging layers up or down in the palette would be a much better solution.

RotoDV includes the usual brush, airbrush, and pencil tools for painting, augmented by some natural-media tools and simple effects brushes for creating sparkles, fire, and more. You can use the tools to paint a frame at a time, or you can turn on the program's Record function to paint across your movie as it plays.

But RotoDV's best paint tool may be its clone feature. You can clone from one part of a frame to another, from previous or later frames, and from one layer to another, making it simple to add elements from a stock footage clip.

Unfortunately, RotoDV's painting tools are hampered by an astoundingly palette-heavy interface, with four palettes—Brush, Brush Options, Dab, and Dab Options—just for controlling brush properties and performance. And you can't dock and group tabbed palettes.

If you want to composite layers using transfer modes or alpha-channel information, you have to create a Blend Stack, a separate collection of layers that sits above the Media Stack in the Timeline window. You use the Blend Stack's controls to select layers from the Media Stack that will be blended and the transfer modes that will be used. Unfortunately, the Blend Stack takes priority over the Media Stack in the final output; setting transfer-mode information for each layer in the Media Stack would be much more intuitive.

Besides interface problems, RotoDV has stability troubles. Even with a set of basic extensions, the program frequently crashed when we imported footage or used the keying features. And while it supports QuickTime effects, the program lacks support for third-party plug-ins.

Macworld's Buying Advice

RotoDV's best feature is its price. The program offers a reasonable amount of rotoscoping but with a clumsy interface. For serious rotoscoping work such as automatic wire removal, image stabilization, and motion tracking, you'll still need a high-end package such as Commotion. Although RotoDV's paint and effects tools aren't as flashy as those of Strata's MediaPaint, the program's support for field rendering and its affordable price make it a decent production tool.—BEN LONG

RATING: ♦♦♦ **PROS:** Speedy RAM previews of footage; good cloning tools. **CONS:** Clumsy interface; frequent crashes; lacks third-party plug-in support. **COMPANY:** Digital Origin (800/572-3487, www.digitalorigin.com). **LIST PRICE:** $699; introductory price, $399.

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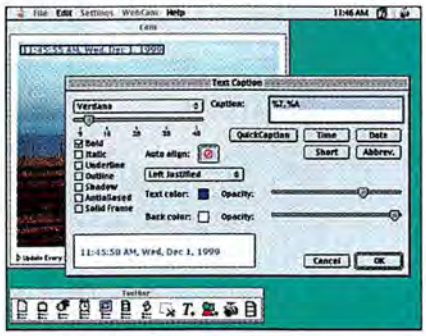
Expert Analysis of the Inside Story

Web-Cam Software

SITECAM GAINS A SERVER; OCULUS GETS EVEN EASIER

WANT TO GIVE THE WORLD A window into *your* world? Set up a Web cam. The Mac makes a great Web-cam engine, thanks not only to the wide variety of video-capture devices available but also to Web-cam software such as Rearden Technology's SiteCam 4.0.1 and Poubelle Software's Oculus 2.5.

Web-cam software does the heavy lifting behind a Web cam, capturing images at regular intervals, adding captions and time stamps, and transferring everything to your Web server or Internet provider (see "A Web Cam of Your Own," *Create*, in this issue). SiteCam and Oculus handle these basics and then some, but SiteCam's power is unparalleled, while Oculus is bargain-priced and easier to use. Both work with QuickTime-compatible video-capture devices and with cameras such as Logitech's QuickCam—but if you have a USB capture device, you should verify compatibility before you buy.



Caption Cam Oculus 2.5 makes it easy to add captions to your Web-cam image.

Oculus's simplicity starts with a series of dialog boxes that walk you through such tasks as naming your Web cam and adding a caption. When you've finished, Oculus creates the necessary settings and even generates the HTML required to summon your cam's image. And setting up captions is a simple matter of dragging them to the desired location. SiteCam makes you enter pixel values in a dialog box, but it offers a wider variety of date- and time-stamping options.

Both SiteCam and Oculus let you create multiple Web-cam documents, but with Oculus your Mac must have a separate video-capture device for each document. On a brighter note, only Oculus lets you apply QuickTime effects to cam images.

Both programs let you set the cam to snap an image only when part of your scene changes. (With SiteCam, you can specify a region within which motion is detected; Oculus's sensitivity controls are more limited.) But unlike SiteCam, Oculus also has an audio-trigger mode that tells the cam to snap an image when the sound level exceeds a specified value.

Both programs also support AppleScript—sort of. SiteCam is fully scriptable, allowing you to create scripts that change captions and image settings, switch capture devices, and more. Oculus itself isn't scriptable, but it does let you execute scripts when certain events occur.

But where SiteCam really pulls ahead is in its ability to serve up images. Version 4 introduces a built-in Web server that lets the program serve up live streaming-video feeds without additional server software. SiteCam's server uses server push to deliver a streaming feed to Netscape browsers; a new Java applet enables streaming to Microsoft Internet Explorer. You can also use SiteCam's server to dish out static images and ordinary Web pages.

Macworld's Buying Advice

SiteCam 4.0.1 is the ultimate Mac Web-cam program, but it isn't cheap and its interface needs some polish. Oculus 2.5 is inexpensive and easy to use but is much more limited. If you want to deliver live feeds or you need precise motion detection or AppleScript support, get SiteCam; if all you need is basic Web-cam capability, give Oculus a try.—JIM HEID

Oculus 2.5

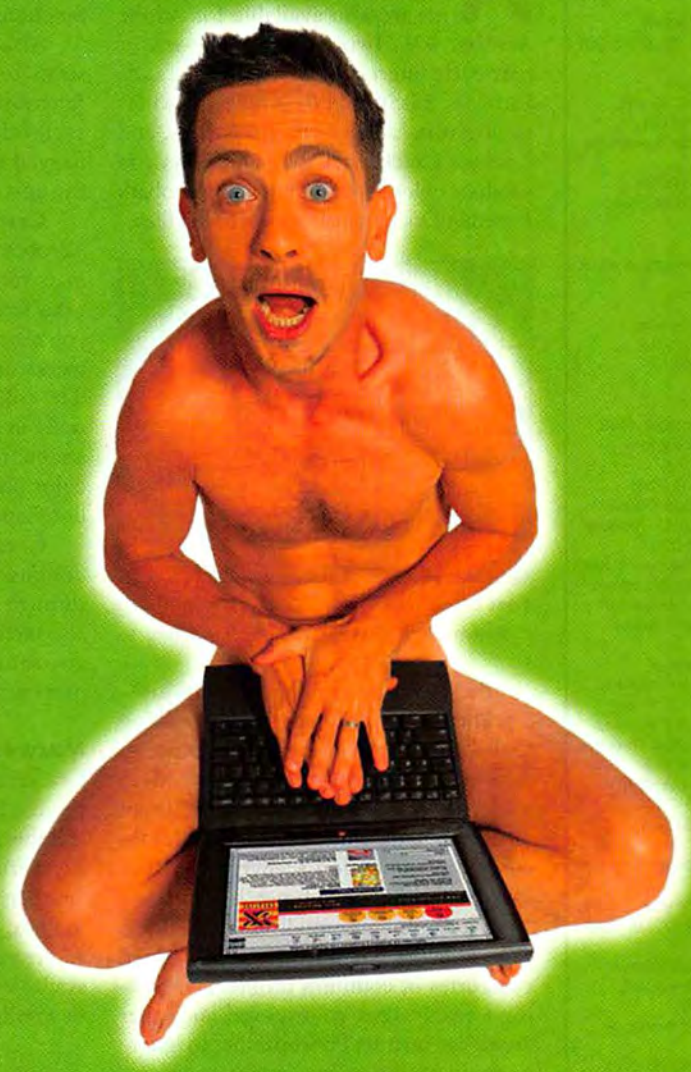
RATING: ♦♦♦½ **PROS:** Straightforward interface; inexpensive. **CONS:** Some tasks require multiple capture devices; not scriptable. **COMPANY:** Poubelle Software (poubel@poubelle.com, www.poubelle.com). **LIST PRICE:** $20.

SiteCam 4.0.1

RATING: ♦♦♦♦ **PROS:** Built-in Web server; fully scriptable; excellent capture support. **CONS:** Interface has some rough edges. **COMPANY:** Rearden Technology (510/523-2267, www.rearden.com). **LIST PRICE:** $199.

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Adobe Acrobat Plug-Ins

PITSTOP 4.0 AND CRACKERJACK 3.0 ADD TO ACROBAT'S ACT

ADOBE PHOTOSHOP, AS everyone knows, has spawned a cottage industry of plug-ins that extend its capabilities. But plug-ins are also available for Adobe Acrobat 4.0. Two Acrobat plug-ins of particular interest to Mac publishers are Enfocus PitStop 4.0, which provides preflighting and editing functions, and Lantana Crackerjack 3.0, which lets you produce color separations from Acrobat's Portable Document Format (PDF) files.



Print Driver on Steroids Crackerjack 3.0 offers extensive color-separation features for PDF files.

PitStop is essentially two plug-ins—a preflighting utility and a set of editing tools—rolled into a single $295 package. The preflighting component, used to inspect PDF documents for likely output or display problems, features profiles for common production scenarios, such as Web publishing or commercial printing.

Setting up and modifying profiles is easy: a dialog box provides access to ten categories of common problems involving fonts, images, color usage, and other areas. You instruct PitStop either to ignore a certain condition or to generate a warning or error message if it occurs. For example, the program might generate a warning if it finds TrueType fonts, and an error if it finds an RGB image. PitStop lists warnings and errors in a preflight report; it flags the file as having failed inspection if it finds an error.

PitStop's editing tools let you add or modify text and vector graphics within PDF files. When editing graphics, you can reshape Bézier curves; change fill or stroke characteristics; and perform transformations such as rotating, resizing, and shearing. These features go far beyond Acrobat's built-in editing tools, but the implementation is clumsy. The functions are scattered across four different areas of the Acrobat interface, and PitStop forces you to switch between tools for such basic functions as moving an object.

Although the editing tools would seem to complement the preflighting function, the two have little to do with each other. You can fix most problems flagged in preflight only by going back to the host application.

Crackerjack could be described as an Acrobat print driver on steroids. Its primary function is to generate color separations from within Acrobat, but it also lets you resize output, add crop or registration marks, and convert spot colors to CMYK. The color-separation functions are especially impressive: you can specify separate screen frequencies and dot angles for each color plate and choose from a variety of dot shapes.

Crackerjack's user interface is well designed, with all functions accessible through a single panel. The $495 package also includes Crackerjack Pilot, which lets you set up hot folders for automatically processing PDF files.

Macworld's Buying Advice

Crackerjack 3.0 is a must-have program if you use PDF files for print production; it's still the only way to generate color separations from Acrobat files. PitStop 4.0 is another worthy addition to your Acrobat toolbox, but its touch-up tools are clumsy and many of its preflighting functions are available in other programs, such as Extensis Preflight Pro.—STEPHEN BEALE

Crackerjack 3.0

RATING: ♦♦♦♦ **PROS:** Comprehensive output functions. **CONS:** None significant. **COMPANY:** Lantana Research (510/744-0282, www.lantanarips.com). **LIST PRICE:** $495.

Enfocus PitStop 4.0

RATING: ♦♦♦ **PROS:** Comprehensive preflight functions and touch-up tools. **CONS:** Clumsy interface. **COMPANY:** Enfocus Software (888/363-6287, www.enfocus.com). **LIST PRICE:** $295.

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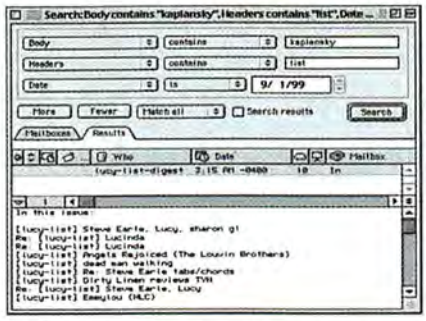
Eudora Pro 4.2

FAST, POWERFUL MAIL CLIENT

ELECTRONIC MAIL CAN BE AN insidious thing, starting as a trickle and quickly becoming a torrent of dozens or even hundreds of messages a day. With a wimpy e-mail program, you'll find yourself spending too much time sorting and shuffling messages. Qualcomm's Eudora Pro 4.2 weathers the storm with ease, offering excellent mail handling, categorization, and filtering, even if you have multiple e-mail accounts. But Eudora's strengths are undermined by a quirky interface and by the fact that its main competitor, Microsoft's Outlook Express, is both very good and attractively priced (free).

Version 4.2, a free update for users of version 4.0, adds some welcome new features. The one that will affect you the most is an inline spelling checker that looks for misspellings as you type. Misspelled words are underlined in red, à la Microsoft Word 98, and spelling suggestions appear in a contextual menu, making it easy to correct errors.

Also new is support for IMAP, a mail protocol that lets you keep your messages and mailboxes on a mail server instead of on your computer. With IMAP you can access your e-mail from any computer and select which messages you wish to retrieve. For example, if you're on the road and using a slower connection to the Internet, you might choose not to download messages with large attachments.

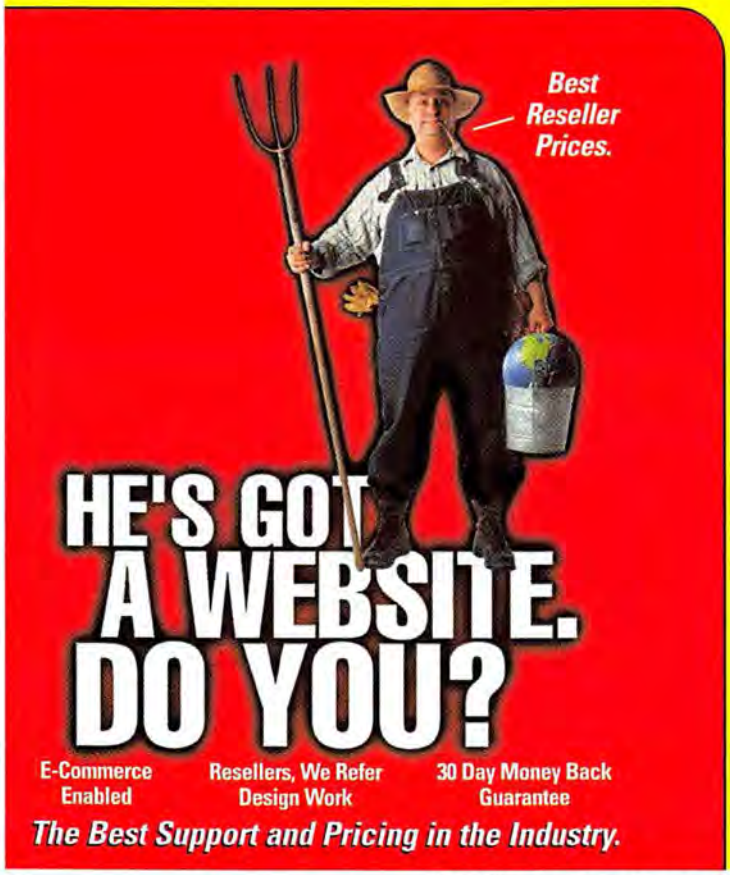


Find It Fast Eudora Pro 4.2's improved search feature makes it easy to track down that elusive message you received months ago.

In its earlier incarnations, Eudora suffered from a complex, difficult-to-use search interface. The search feature is vastly improved in version 4.2; the interface, reminiscent of Sherlock's, has an upper pane containing menus and text boxes for search criteria and a lower pane displaying results. You can search on any Internet header or message attribute, such as status, priority, date, or size. You can even use geeky but powerful regular expressions as search terms. Eudora lets you search using up to 16 criteria at a time, allowing for extremely precise searches. You can select one or more mailboxes to look through, or you can search your entire mail database. Once you've found the messages you're looking for, you can use the Results window just as you would any mailbox window; unlike with some programs, you don't have to work in a special search mode.

Macworld's Buying Advice Now that Claris Emailer is languishing, Eudora Pro's primary competition is the free Outlook Express (OE), which has a more user-friendly interface than Eudora Pro and an unbeatable price. In terms of features, Eudora Pro 4.2 is a bit ahead of OE 4.5, but the recently announced OE 5.0 promises to close the gap. Longtime Eudora Pro users will continue to enjoy the fast, capable mail handling they're used to, but they may not be joined by many fresh converts.—TOM NEGRINO

RATING: ♦♦♦♦ **PROS:** Fast and flexible; improved search function; new IMAP capability. **CONS:** Idiosyncratic interface; competing product is free. **COMPANY:** Qualcomm (800/238-3672, www.eudora.com). **LIST PRICE:** Boxed version, $50; downloadable version, $40.



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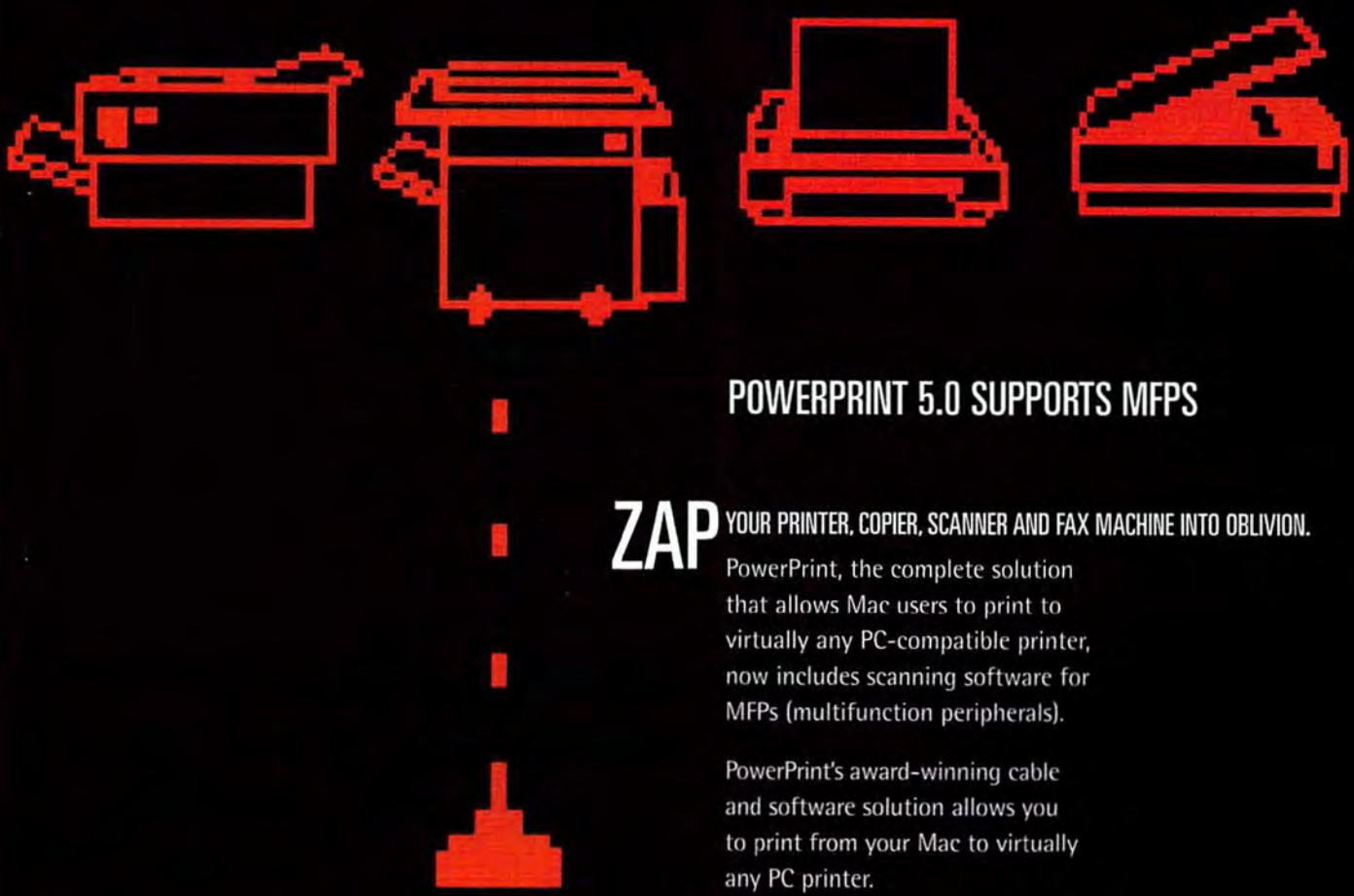
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Snap Server

A SNAP TO ADD DRIVES TO A NETWORK



GIBSON

CALL IT A THIN FILE SERVER, A network appliance, or network-attached storage: Using Quantum's Snap Server is an easy and affordable way to add drives to your network. The small box—a little larger than a phone book—is available with either one or two internal hard drives, with a total capacity of 8GB, 16GB, or 32GB. The box attaches directly to your network via a 10/100BaseT Ethernet connection, making volumes available to any user.

Setting up the server is a cinch, especially given the excellent documentation. Because the server has no screen, keyboard, or mouse, you configure it over a network. Once you assign the Snap an IP address, you use a Web browser on any client system to access the setup wizard, which helps you configure the drives. You can set up the drives as separate volumes or combine them as a striped RAID 0 or mirrored RAID 1 volume. The device supports Mac, PC, Novell, and Unix clients, and it also supports Mac OS X Server, but only in the Blue Box Mac OS–emulation mode.

Sharing data is easy; it's restricting access that's difficult. The Snap Server imports user and group lists from NT Domain Security and Novell Networking, but with Appleshare IP, you have to manually enter each user's information. And the interface is awkward. To change users' security access, you must first remove their information from the group and then change the access level and re-add them.

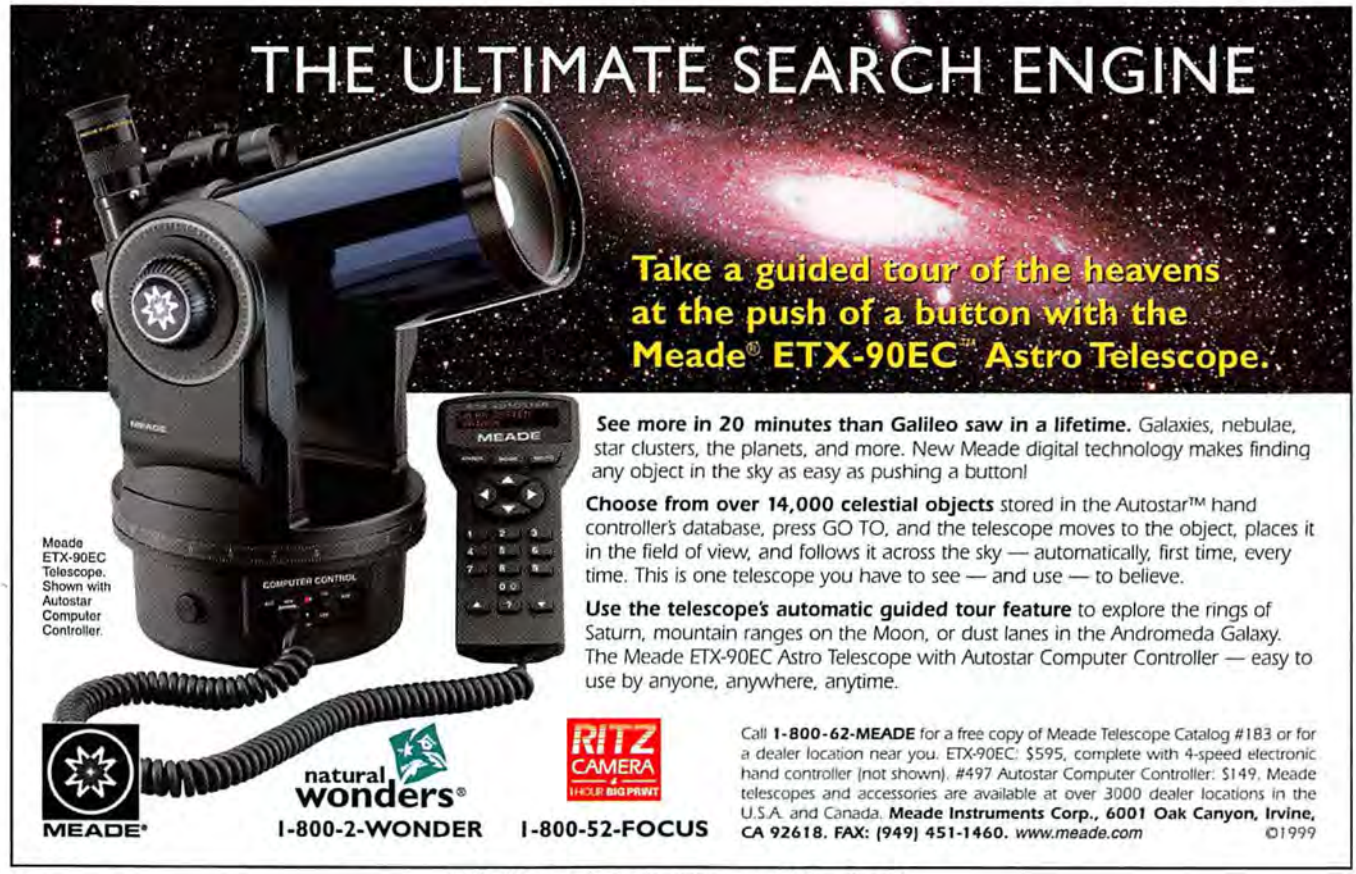
The integrated Web server automatically provides read-only access to all files. Unless you have a firewall, anyone on the Internet can get to the data. However, you can manually set rules for Internet access or turn off the Web-serving capabilities.

Although you can use a Mac-based Web browser to configure the server, the Snap allows Mac file transfers only through AppleTalk. By the time you read this, Quantum should have a free software update, version 2.1, that will allow Mac clients to transfer files via IP. This should remedy a bug that causes Snap volumes to report only 3.7GB of space, regardless of how much space is available. IP support should also allow speedier network transfers, although we found that the Snap performed adequately on a 10BaseT network.

Because the server runs a Unix derivative, it cannot perform backups by using Dantz's Retrospect client software. However, you can mount the volumes from a Mac client and use the client's copy of Retrospect to back up the server.

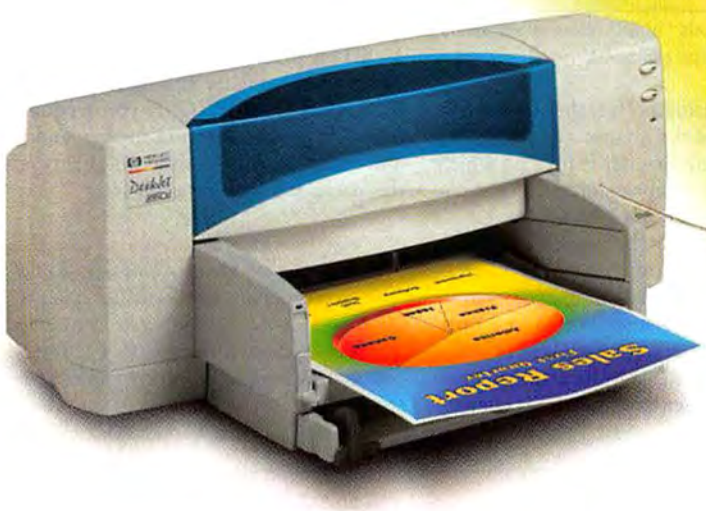
Macworld's Buying Advice The cost of adding volumes to a network goes beyond buying hardware. You also have to consider the time needed to take the server off the network to configure the volumes. The Snap Server is a bargain in both respects: it's reasonably priced and offers no-headache setup. When Quantum adds IP support for Mac clients, it will be an even sweeter deal.—KRISTINA DE NIKE

RATING: ★★★½ **PROS:** Easy setup. **CONS:** Does not yet offer IP support for Mac clients. **COMPANY:** Quantum (888/343-7627, www.snapserver.com). **COMPANY'S ESTIMATED PRICE:** 8GB, $994; 16GB, $1,795; 32GB, $2,495.



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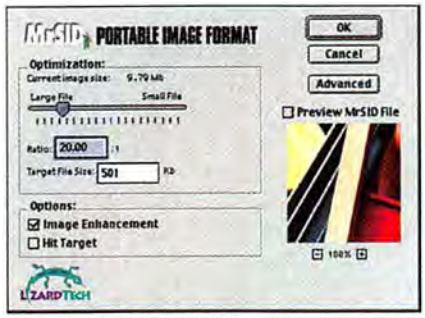
BETTER IMAGE COMPRESSION—FOR A PRICE

THEY CALL IT MRSID, BUT IT'S not a character from an old TV show; the name stands for Multiresolution Seamless Image Database, an image-compression technology from LizardTech. The first Mac implementation is MrSID Publishing Edition, a $495 package, primarily for prepress applications, that offers higher-quality image compression than the reigning JPEG standard.

MrSID uses *wavelet scalar quantization* compression, an improvement on JPEG's *discrete cosine transform* technology. Both are lossy compression schemes, meaning that they sacrifice image data as the compression ratio increases. However, MrSID can compress pictures at higher ratios than JPEG without adding the artifacts often found in highly compressed JPEG images.

The program's core is an Adobe Photoshop plug-in accessed through Photoshop's Save As menu option. You choose a compression ratio by entering a number, moving a slider, or specifying a target file size (see "Squeezing the Pixels").

To see how MrSID compares with JPEG, we compressed a series of images at various ratios using both technologies. We also compressed the images using Altamira Group's Genuine Fractals Print Pro, which offers one lossy compression ratio of about 5:1 (see *Reviews*, March 1999).



Squeezing the Pixels MrSID offers several methods for setting image-compression levels.

The differences between JPEG and MrSID are dramatic. At a 30:1 ratio—enough to squeeze a 12MB image down to 400K—the MrSID image displayed only minor artifacts. The smallest JPEG file (about 20:1) showed extensive artifacts, even though it was larger than the MrSID image. At a 10:1 compression ratio—equivalent to JPEG's medium compression—MrSID really hit its sweet spot, exhibiting no discernable artifacts at all. Indeed, picture quality was comparable to that of the Genuine Fractals image, which was about twice as big. (Unlike Genuine Fractals, MrSID does not let you scale an image up beyond the original size.)

The MrSID package includes a Photoshop plug-in for distribution to users who need to view your images, plus a browser plug-in for viewing images online. A QuarkXTension lets you import MrSID images into QuarkXPress, where you can view and print them. All three modules are available as free downloads.

Macworld's Buying Advice At $495, MrSID is pricey. However, it offers much better image quality and higher compression ratios than JPEG. If you frequently transmit high-resolution images and you don't want to compromise on quality, give this package a look.—STEPHEN BEALE

RATING: ★★★½ **PROS:** Allows high levels of image compression with minimal loss of quality. **CONS:** Expensive; uses convoluted installation procedure. **COMPANY:** LizardTech (206/652-5211, www.lizardtech.com). **LIST PRICE:** $495.

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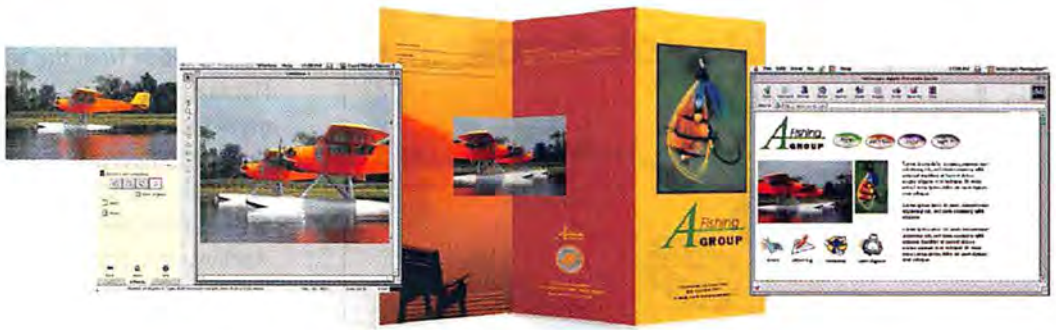
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MOST PERSONAL INTERNET connections are two-way streets: they not only connect you to the world but also connect the world to you, leaving your computer exposed to Internet hackers and denial-of-service attacks. Corporate networks traditionally use firewalls to defend networks against attack, but what can an individual using a dial-up, DSL, or cable modem do? Intego's personal firewall, NetBarrier 1.0.1, protects a single computer in the same way a full-fledged network firewall protects an entire network: by excluding all incoming traffic you haven't specifically permitted in advance. In addition to providing Internet protection, NetBarrier monitors AppleTalk connections, letting you keep tabs on coworkers' access to your Mac.

NetBarrier starts automatically every time you reboot, monitoring all network traffic on your Ethernet or dial-up connection. The program's main display consists of gauges depicting traffic flow for each of the network protocols that NetBarrier monitors—Web, FTP, e-mail, other IP, and AppleTalk. You can choose one of five protection profiles, to match the kind of network connectivity you want to permit by default: no Internet, Internet client with local serving, Internet serving only, Internet client only, or customized protection.



An Eye on the Network NetBarrier's traffic monitors let you check on network data exchanges.

You can configure NetBarrier's Antivandal function to block common hacker attacks, such as Ping of Death, SYN and ping flooding, port scans, and hostile Java applets. Antivandal also compensates for one weakness of the Mac OS: predictable TCP sequence numbers that let an interloper intercept and take over an existing Internet client session. To close this loophole, NetBarrier lets you scramble TCP sequence numbers. You can also ask to be notified of repeated failed attempts to log into personal file sharing.

In addition to filtering incoming traffic, NetBarrier filters outgoing traffic to protect specific personal data items, such as credit card numbers, that you may want to protect from inadvertent or unencrypted transmission over the Internet. NetBarrier also logs significant security events; if a security violation is detected, you can be notified by dialog box or e-mail. You can also choose to automatically put any trespasser's IP address on a "stop" list. Alas, NetBarrier's log file does not resolve IP or AppleTalk addresses to names, making it difficult to identify who may be trying to get into your machine.

Macworld's Buying Advice LAN security products are widely available, but until NetBarrier was released, individual users were left out in the cold. If you have a single-machine Internet connection or concerns about what other LAN users might be doing with your computer, NetBarrier can give you some piece of mind—albeit at a rather steep price.—MEL BECKMAN

RATING: ♦♦♦♦ **PROS:** Comprehensive firewall protection; outgoing-content filter; real-time traffic measurements. **CONS:** No address-to-name resolution; expensive. **COMPANY:** Intego (305/629-3501, www.intego.com). **LIST PRICE:** $150.

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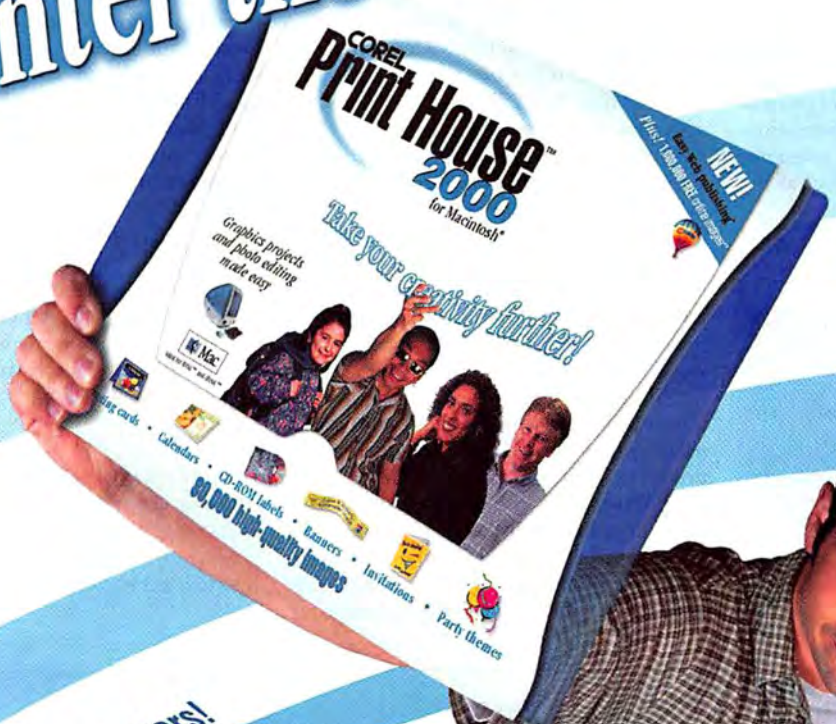
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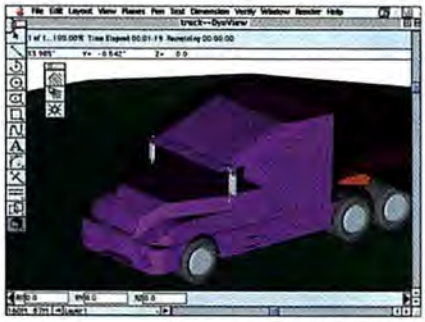
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Vellum Solids '99

3-D CAD FOR DESIGNERS

ARRIVING ON THE HEELS OF the original Vellum Solids (see *Reviews*, October 1998), Ashlar's Vellum Solids '99 is packed with new solids-modeling features yet still relatively easy to use. Although the rapid code upgrade shows evidence of a few growing pains, no other Mac CAD product can compete with Ashlar's implementation. Ashlar, of course, is looking over its shoulder not at its Mac competition but at the industry leader, Autodesk's AutoCAD, whose clunky-but-improving design-modeling capabilities this new version is intended to outdistance.



Honk! Here's AutoCAD's famous truck file, translated into Vellum Solids '99 from .DXG and rendered with Vellum's own lighting and shadowing effects.

Vellum Solids '99's long list of new features will appeal most to industrial designers. While architectural CAD depends primarily on standardized components, CAD for industrial design depends on the fluid handling of curves and curved surfaces—think of the iMac or BMW Z3. Solids '99 lets you draw a curve, rotate it in space to generate a surface, and then "knit" this surface to another with a few quick mouse operations.

Even more impressive, the program remembers the association between your original curves and the surfaces, so you can modify the whole integrated structure by moving a few points that defined the original curves. Solids '99 also does a competent job of translating files from other CAD systems into drawings where free-form surface associations are recognized.

Solids '99 gives you access to all this power using the self-explanatory tools and palettes familiar to users of earlier Ashlar products. This is fortunate because, while the product ships with complete documentation in a binder, it has none of the CD-based tutorials we've come to expect from CAD software. Solids '99 does a better job than the earlier version at approximating truly photo-realistic output, and experienced solids modelers shouldn't have much trouble poking their way through the new options for surfaces and lighting, but designers making the transition from strictly 2-D work may need some guidance.

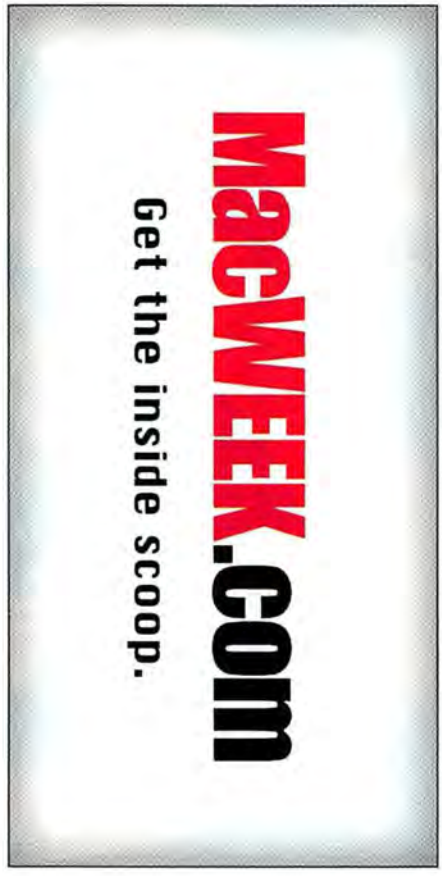
The program could also use some refinement in places. For example, although Ashlar claims Solids '99 runs on a 128MB system, memory allocations up to 256MB produce Finder error messages, and it feels sluggish compared with last year's model. In addition, Solids '99 can't read AutoCAD 2000 files—a glaring exception to Vellum's usually excellent import/export utilities.

Macworld's Buying Advice Vellum Solids '99 is Ashlar's ambitious attempt to produce a dream product for industrial and mechanical design, although it's a little rough in spots from the furious pace of implementation. If you're an old Vellum pro and don't need much hand-holding, Solids '99 can accelerate your creative impulses.—CHARLES SEITER

RATING: ▮▮▮½ **PROS:** Truly impressive feature set. **CONS:** Bloated memory requirements; can't read AutoCAD 2000 files. **COMPANY:** Ashlar (800/877-2745, www.ashlar.com). **LIST PRICE:** $3,995.



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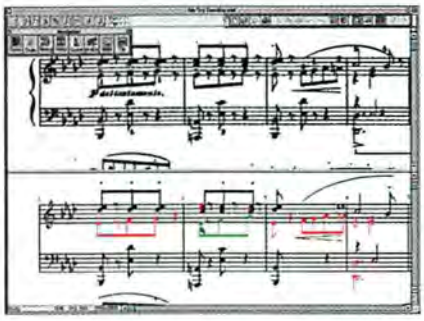
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SmartScore 1.2

FLAWED NOTATION-SCANNING SOFTWARE

MUSICIANS DREAM OF THE DAY they can slap sheet music onto a scanner and have notes translated into information a computer can understand and manipulate. Musitek has attempted to fulfill those dreams with SmartScore 1.2.2, an application designed for musical optical character recognition and notation editing. Regrettably, although SmartScore has its noteworthy moments, it's hardly the stuff dreams are made of.

After scanning a printed (not handwritten) score, you tell SmartScore to turn the image of your score into editable music notation and MIDI data. Given an uncluttered score, SmartScore translates most notes, accidentals, rests, and key and time signatures correctly. If a score is cluttered—with thick chords containing numerous accidentals, for example—SmartScore is less accurate. Accuracy aside, unless you have another notation application capable of reading SmartScore's files—Coda's Finale, for example—you'll spend a fair amount of time in SmartScore's editor cleaning up missed notes, accidentals, and rests. You'll also have to add elements the program doesn't recognize—triplets and tuplets, trills, fermatas, and most dynamic markings.



Compare and Contrast The score at the top of the illustration is the original scan; beneath it, SmartScore 1.2.2's unedited translation.

Like all other notation-editing programs, SmartScore offers several tool palettes swollen with musical symbols. Oddly enough, it lacks an eraser tool, and it needs one—badly. Although SmartScore gives you two ways to remove items—by selecting them with the lasso tool and pressing delete or by using one of the palette tools in combination with the X key to invert that tool's function—both methods are unnecessarily complicated and not always effective.

In addition to providing an eraser tool, Musitek should consider designing a more intuitive interface. Assigning two functions to one key and forcing users to toggle between them, as Musitek does with the Insert and Change commands, makes the program needlessly confusing.

SmartScore could be smarter about other things as well. Nearly all notation programs beam notes correctly when you add a note to a beamed group. With SmartScore, you have to indicate not only the direction of the beam but also, in some cases, the direction of the stem. This kind of fiddling is required throughout the program. Finally, Musitek should toss out SmartScore's manual and try again with a Mac-savvy author. The manual is full of Windows-specific commands, references to the Mac's Alt key, and typos.

Macworld's Buying Advice SmartScore 1.2.2's ability to pull as much music as it does from a scanned score may be a compelling enough reason for some musicians to drop $400 on the program. But for that price, many might prefer an editor that functions as capably as the recognition component.—CHRISTOPHER BREEN

RATING: 2½ **PROS:** Translates clean scores reasonably accurately. **CONS:** Lacks an eraser tool; nonintuitive editor; sloppy manual. **COMPANY:** Musitek (805/646-8051, www.musitek.com). **LIST PRICE:** $399.

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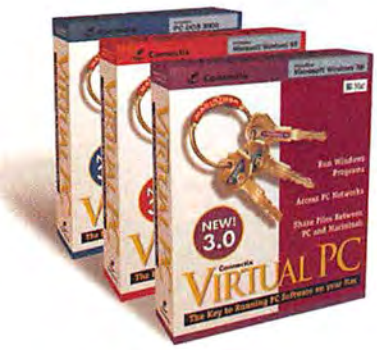
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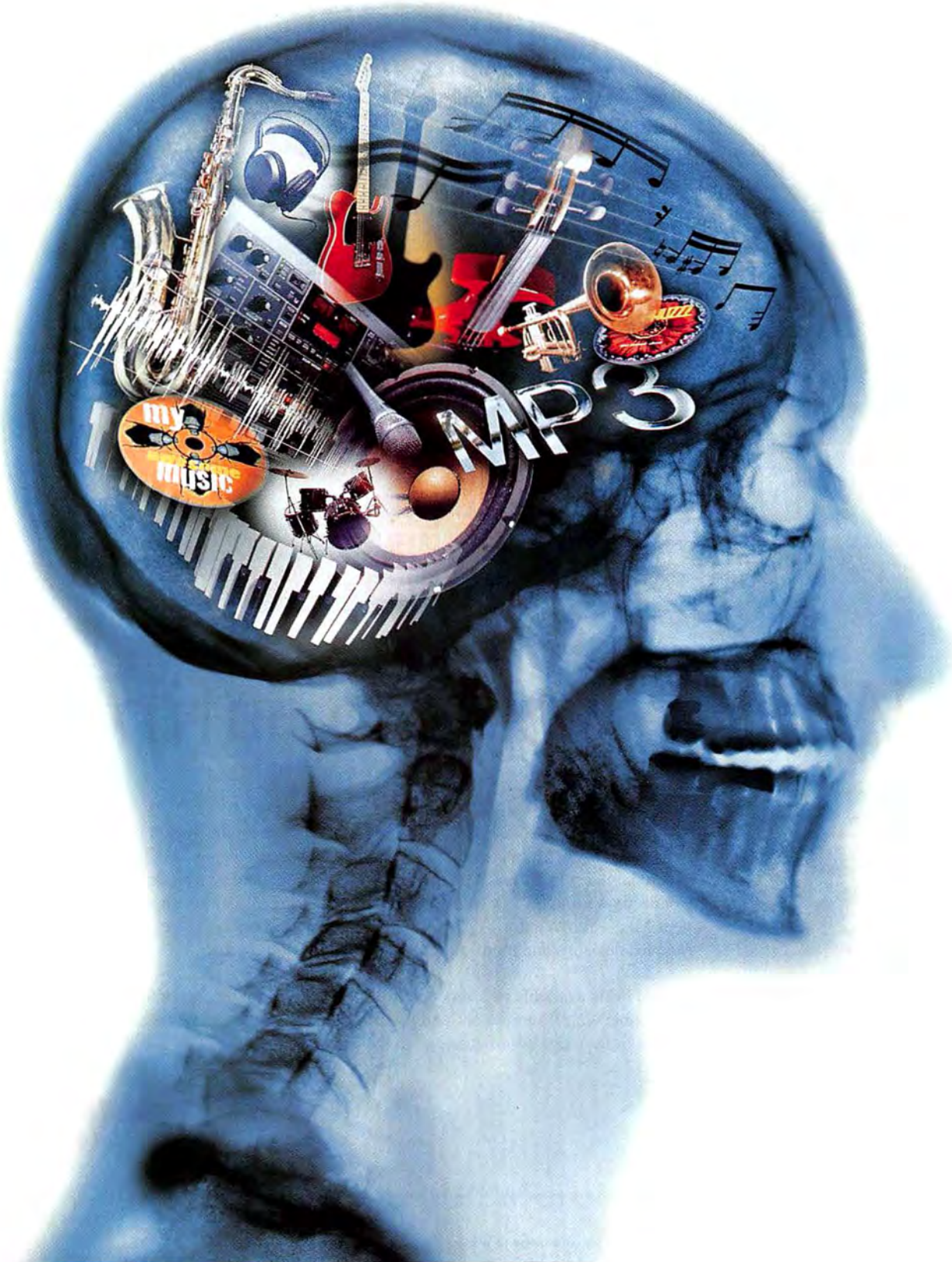


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Holiday Gifts for Gamers

TURN YOUR MAC INTO A MONSTER WITH THESE PERFECT PRESENTS

by Christopher Breen

Our culture is slathered with hints that growing old is hardly a boomps-a-daisy bacchanal. From Ralph Waldo Emerson's gloomy contention that "Nature abhors the old" to Pete Townsend's fervent desire to "die before I get old," it's clear that aging is pretty much everything it's cracked up to be. No fun.

I don't intend to gripe about any little aches and pains or the fact that I'm no longer carded at the local tavern. My very specific beef with getting older is that I haven't received a holiday toy in years. No Johnny Seven O.M.A., lawn darts, or Water Wiggle greet me on a Christmas morning. Instead, when I pull a package from under the holiday shrub and rip open its paper covering, it invariably contains some article of clothing: a sweater, a tie, a couple of shirts, or—*shudder*—worst of all, *underwear.*

Well, this year things are going to be different. In an attempt to improve my lot—and, of course, the lot of my faithful readers, whose wardrobes likewise swell during the holiday season—I've compiled this list of gifts for Mac gamers. Like me, you may wish to leave a copy of this column lying about the house, at the office, and appended as a signature to any e-mail messages you send to your nearest and dearest.

Essential Gifts for Every Gamer

Let's begin with what are surely the "socks and underwear" items of gaming. These goodies, in and of themselves, aren't a ton of fun, but when added to your Mac, may allow it to tackle games that were previously unplayable.

RAM Glance at the system requirements of today's hottest games and you'll realize that a Mac with 32MB of RAM will do little more than sputter and choke when you try to launch one of these memory-gobbling diversions. Serious players outfit their Macs with 128MB of RAM or more. With virtual memory or Connectix's RAM Doubler 8 you can squeak by with 64MB, but I'd still recommend 96MB as a minimum.

Storage Many new games come with installers that allow you to copy a little or a lot of the game to your hard drive. For best performance, I suggest you copy a lot of the game—and by "a lot" I mean several hundred megabytes. You won't be able to do so, however, without a roomy hard disk. Therefore, ask Santa for a drive with double-digit gigabyte capacity or, if you want to take your games on the road, try pleading for a high-capacity removable drive. Castlewood's (925/461-5500, www.castlewood.com) $200 Orb drive looks like it has potential in this regard—if Castlewood finally gets around to releasing Orb Tools for Mac, of course. If your Mac has FireWire, VST Technologies' (978/635-8200, www.vsttech.com) FireWire drives are another portable option.



RICH LILLASH

Speakers The iMac's minuscule speakers are cute but incapable of producing the Big Sound you want in your gaming. I'm keen on speakers made by Sonigistix (877/722-8346, www.sonigistix.com)—the $230 MM-1000 flat-panel speakers, in particular—but speakers are a very personal choice. Go to your local computer emporium and audition lots of speakers. Once you find the ones you like, drag any potential gift givers to the store, force them to stand in front of your favorites, and pointedly remark that having these speakers would finally lend meaning to your life.

If you're a gaming fiend and not embarrassed to ask for what may be the ultimate audio gaming goodie, place Imeron's (800/274-5227, www.imeron.com) Intensor LX game chair at the top of your holiday gimme list. This $200 chair sports five speakers that pound sound into your vital parts—enhancing the realism of your games and, depending on a game's audio qualities, providing you with a free massage.

All Presents Accounted For

Now we're getting to the good stuff—items that, while not absolutely essential, are sure to make your gaming life richer and more enjoyable.

Video Cards When played under 3-D–acceleration hardware, a compatible

continues

game's graphics are absolutely stunning. If your Mac doesn't have 3-D–acceleration hardware—or if you have underpowered 3-D–acceleration hardware such as ATI's Rage II, Rage IIc, or even a Rage Pro—and your Mac has an open PCI slot, beg for a 3-D accelerator card.

You have a couple of choices in this regard. ATI (905/882-2600, www.atitech.com) makes the $200 Rage Orion, a solid 2-D/3-D gaming card that features the Rage 128 chip set and 16MB of VRAM. If you play games that support the RAVE and OpenGL 3-D video standards, this card is worth having.

If you want to play games that support 3dfx Glide—MacSoft's Quake, Quake II, and Unreal, for example—suggest that Santa supply you with a graphics card that features 3dfx's Voodoo2 or Voodoo3 chip. 3dfx (888/367-3339, www.3dfx.com) has kindly provided Mac drivers for its Voodoo2 and Voodoo3 cards. With these drivers your Mac can drive a cheap Voodoo card originally intended for a PC.

Thankfully, you don't have to choose between a RAVE and Glide card; you can have both. My Power Mac G3 sports a Rage Orion *and* a 3dfx Voodoo2 1000 card. When I play RAVE games, such as Pangea Software's Bugdom, the Rage Orion does the job. When I want to play the Glide version of Unreal Tournament, the Voodoo card takes over.

If you want to find out if Santa really has a brand-new bag, check out Formac's (925/251-0100, www.formac.com) $260 ProFormance 3 video card (see *Reviews*, November 1999). This 128-bit 2-D/3-D card offers support for RAVE and, by the time you read this, OpenGL. That's all well and good, of course, but what makes the ProFormance 3 stand out is its support for Formac's $99 ProCyber3D virtual-reality glasses. I tried a pair in Macworld Lab, and they produce a beautiful 3-D effect with games that support RAVE Z buffering—Bugdom, Interplay's Carmageddon 2, and Unreal, for example. Not only do the darned things actually work, but best of all, they don't give you a blinding headache after a short period of use.



Gravis Xterminator game pad

Controllers If you want control over your games you must have a gaming controller. First on my list of must-have input devices is a multibutton mouse. I wouldn't venture into any first-person shooter without a mouse that has at least two buttons—one for firing and one for jumping. USB versions of these many-buttoned rodents are available from such companies as Logitech, MacAlly, Contour Design, and Belkin.

If you have a penchant for piloting, the next gift on your list should be a joystick. My current favorite is Saitek's (310/212-5412, www.saitek.com) $70 Cyborg 3D, a solidly built, ten-button USB stick that can be easily configured for righties or lefties. My only complaint with the Cyborg 3D is that some of its buttons are inconveniently placed. For that reason I've been flying Falcon 4.0 with Gravis's (800/235-6708, www.gravis.com) $70 Xterminator Dual Control joystick—a for-righties-only controller that features easy-to-reach buttons and a solid feel.



Gravis Xterminator joystick

Arcade gamers will want a game pad, and I can't think of a better one than Gravis's $40 Xterminator Digital Game Pad. It includes a pantload of buttons (you can program up to 48 functions on this sucker) and an ergonomic design. As with the Cyborg 3D and Xterminator joystick, this USB game pad works only with InputSprocket-compatible games.

Stuff It Finally, nothing takes the joy out of Christmas morning like finding a solitary orange jammed into your holiday sock. When I'm thinking of stuffing a stocking I turn to my local software dealer. Companies such as MacSoft, Bungie Software, Sierra, and Star-Play have compiled bundles of their classic games and offer those bundles for around $20. If I were shopping for a Mac gamer I'd pick up a few of these bundles and shove the CDs way down to the toe.



Sonigistix MM-1000

Ho, Ho, Ho

So if you've "found" this column conveniently lying open on your coffee table, remember, the holidays are a time of giving. By following the suggestions I've listed here, you'll provide your favorite Mac gamer with a gift far more fun than a new sweater. By replacing that brightly wrapped box of cotton briefs with a new video card, joystick, or game bundle, you're doing no less than acknowledging that its recipient—regardless of his or her age—is still young at heart. **m**



Formac Proformance 3 video card and ProCyber3D virtual-reality glasses

Contributing Editor CHRISTOPHER BREEN might also suggest that his latest coauthored book, *My iMac* (IDG Books Worldwide, 1999), while just as colorful as a fruitcake, tastes significantly better.

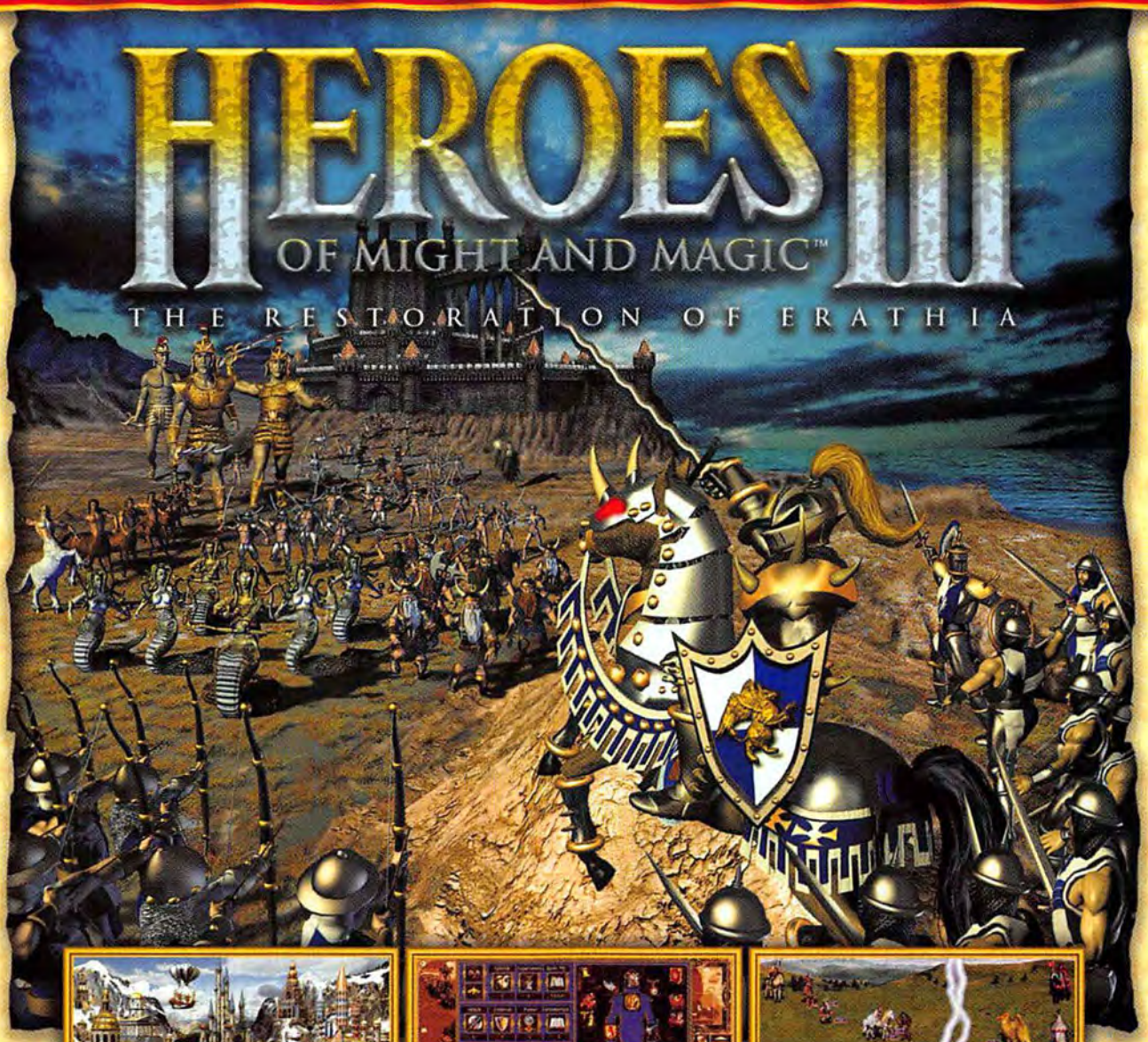
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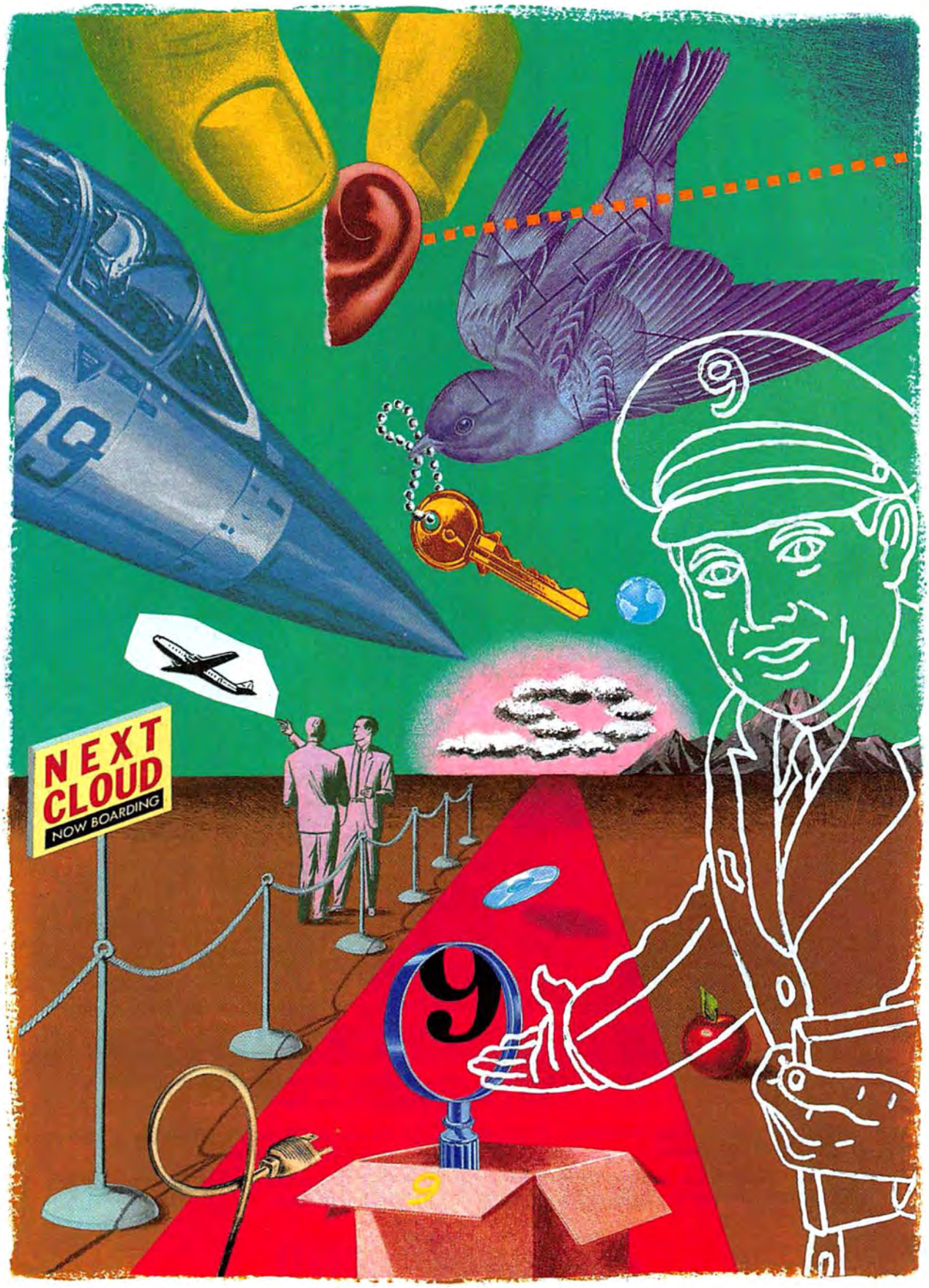
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NEXT CLOUD
NOW BOARDING

Mac OS 9

Apple has once again bestowed on Mac users an improved version of the trusty Mac operating system. But this time there's a bit of uncertainty on the horizon: Mac OS X. With Mac OS X due early next year, is Mac OS 9 nothing but an interim step you should ignore? Is Apple still committed to the original Mac OS, or is it merely marking time until OS X ships?

BY HENRY BORTMAN

We don't have a crystal ball that lets us peer into the mind of Steve Jobs, but from what we've seen, Mac OS 9 is just as relevant an update as Mac OS 8.5 was last year. Not only does it make the Macintosh far more Internet-savvy than it once was but it also makes some fundamental changes to the way the Mac OS works—changes that may influence your life for the better *today*.

Mac OS X certainly is the future, but even when it arrives in early 2000, it may not edge out OS 9 right away. Many users will likely avoid the first version until the bravest among us have given it a thorough testing-out (and Apple has repaired any bugs). And for users of pre-G3 Macs (which Apple says won't run Mac OS X), Mac OS 9 may be the most advanced Mac OS version they'll ever run—and it will serve as an important bridge to people who make the move to Mac OS X.

The New Face of Mac

Mac OS 9 has many solid new features to recommend it, regardless of how you feel about Mac OS X's waiting in the wings. What stands out above all else is Apple's commitment to the Internet. Two of the operating system's major features, peer-to-peer file sharing over TCP/IP and improvements to its search technology, Sherlock, have *Internet* stamped all over them. Mac OS 9 is the first Mac OS version to let you access remote file servers that use FTP (File Transfer Protocol) without downloading a special program. It also is the first one that can automatically update itself over the Net.

People who can benefit from the power of the Internet aren't the only ones who will appreciate Mac OS 9. Anyone who shares a Mac will be able to take advantage of Mac OS 9's other major addition: support for multiple users (see the sidebar "The Many-Faced Mac").

And that's not all. Mac OS 9 is sprinkled with other nice touches, including the return of the Keychain—last seen as a part of System 7 (see the sidebar "The Keychain Returns")—and the ability to password-encrypt individual files.

ILLUSTRATIONS BY GENE GREIF

Sherlock Turns 2

Sherlock, the banner feature of Mac OS 8.5, has gotten a serious, profound face-lift in Mac OS 9. In its original incarnation, this Swiss Army Knife of searching allowed you to search the Internet through the venerable Find File application. Mac OS 9's Sherlock 2 is a major improvement.

It's Elementary Gone is the three-tabbed interface of the original Sherlock. In its place is a silver, QuickTime 4.0–style interface (see the screen shot "Sherlock Reborn") featuring eight different "channel" buttons. (The buttons contain only icons, but corresponding text appears if you hold the cursor over one momentarily.)

The first Sherlock 2 channel is for finding files on mounted volumes (a combination of the Find File and Find By Content tabs in the original Sherlock), and the other seven are for searching the Internet. This change in approach is also reflected in the Finder. In Mac OS 9, Search Internet (⌘-H) has been added to the File menu, leaving Find (⌘-F) to serve solely as a means of tracking down files on your local volumes.

Ready, Set, Search Apple must have gotten tired of all the complaints about how difficult it was to turn different sets of Sherlock search plug-ins on and off. (Each plug-in enables Sherlock to connect to and search a particular site.)

Now every Sherlock 2 Internet search channel contains a different set of plug-ins (see the table, "Sherlock 2's Eight Channels"), and you can download new plug-ins and add them to the appropriate channel. Sherlock 2's last Internet channel, called My Channel, is a holding bin ready for any plug-ins you'd like to add.

Each of the seven Internet channels is assigned a channel type: Searching, People, Shopping, or News. Each channel type displays different columns of information in the search results it presents. For example, the Shopping channel includes columns for Price and Availability, making it easy for you to do comparison shopping (see the screen shot "Sherlock Reborn").



Sherlock Reborn Sherlock's sleek new interface displays search results in the same window you use for typing search terms.

In addition to getting the built-in channels, you can create custom channels—as many as you like. You can also add plug-ins to any of Apple's built-in channels.

Interface Touches Don't let the silver interface distract you from the other Sherlock 2 interface improvements. Sherlock presents the results of your search in the window in which you entered what you wanted to look for—no more waiting for a results window to pop up atop the Sherlock window. The advertisements that show up when you do an Internet search now appear in their own panel of the Sherlock window, meaning that you can't hide them but also that you don't need to scroll past them to see the information about the items you've found. And—a small touch, but one of our favorites—your search phrase carries over when you switch from one channel to another.

Internet Everywhere

With Mac OS 9, it's clear that Apple is beefing up its support for TCP/IP, the public-transit system of the Internet. What this means is that two Macs running Mac OS 9 on different parts of the Internet—a world without AppleTalk—can communicate with one another far better than they've been able to thus far.

Share Anywhere What's new in Mac OS 9 is that any two users can share files over the Internet. Just as System 7 enabled direct user-to-user file sharing over AppleTalk networks, Mac OS 9 enables it over the Internet. Now as long as two Macs are both connected to the Internet, OS 9 will let you exchange files without ever having AppleTalk get involved.

Also new in OS 9's stable of Internet-networking tools is built-in file transfer via FTP. From within the Network Browser, you can now access FTP sites—the most common type of file servers on the Internet—by name or by IP address. You can even add FTP destinations to your Favorites list for easy access. You can't, however, add the name of an entire site to the list—only the name of a folder within a site, which is a bit annoying. Nor is FTP fully integrated into the Finder. Using drag and drop, however, you can copy a file to a local hard disk from an FTP site whose contents are listed in the Network Browser.

Will this new feature put stand-alone FTP programs such as Stairways' Anarchie and Dartmouth College's Fetch out of business? Probably not. Apple's FTP interface isn't nearly as refined as those programs', and all of them offer features (such as resuming partial file downloads, automatically opening text files in Bare Bones Software's BBEdit for editing, and automatically syncing the content of

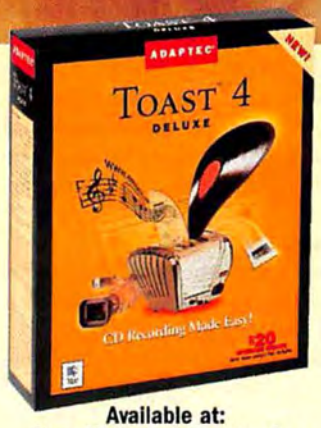
Sherlock 2's Eight Channels

Channel	Function	Plug-ins
Files	Search your hard disk, either by file attributes or text content.	None
Internet	Perform basic Web searches.	AltaVista, clnet, Direct Hit, Excite, GoTo.com, HotBot, Infoseek, LookSmart, Lycos
People	Find personal contact information.	Bigfoot, Four11, Yahoo
Shopping	Comparison-shop in the online marketplace.	Amazon.com, Barnes & Noble, eBay
News	Read the latest headlines, sports, and financial news.	clnet News, CNN Interactive, ESPN, Motley Fool, Quicken.com
Apple	Get the scoop on Apple products and support.	Apple Macintosh Products Guide, Apple Tech Info Library, Apple.com
Reference	Access reference-shelf basics online.	Dictionary.com, Encyclopedia.com, Roget's Thesaurus
My Channel	Add other Sherlock plug-ins for personalized searching.	None

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The Keychain Returns



THE MAC OS KEYCHAIN HAS HAD A CHECKERED HISTORY. INTRODUCED IN 1993 as part of Apple's PowerTalk suite of communications services in System 7 Pro, it was never widely adopted. Apple decommissioned it, along with the rest of PowerTalk, in 1997, with the release of Mac OS 7.6. Now it has returned as a stand-alone feature in Mac OS 9.

The idea of the Keychain is straightforward. You know how you have to type in a password every time you access a different file server, protected Web site, or FTP server? It gets tedious. If you have different passwords for different activities, it can also get confusing. The Keychain removes both the tedium and the confusion. In place of a bazillion different passwords, you need remember only one: your Keychain password (see the screen shot "Password Protector"). Once you've unlocked your Keychain, it automatically performs all of your other password activities for you—provided, of course, that you've added said passwords to the Keychain in the first place. Not only does this work in the Finder but software developers can easily adopt it as well. Anarchie 3.6.1, for example, supports the Keychain for access to FTP servers.



Password Protector The Keychain can store passwords to file servers, FTP servers, encrypted files, and just about anything else that requires a password.

But although the Keychain concept is elegant, its Mac OS 9 implementation is a bit fuzzy. Some of the dialog boxes that pop up when you need to unlock the Keychain are confusing. One other annoyance—not Apple's fault, really, but annoying nonetheless—is that the Keychain really doesn't work with Web browsers right now. Here's hoping that the developers of Internet Explorer and Navigator will add support for the Keychain in the near future.

Because of these ragged edges, Keychain use will probably get off to a slow start. But it's a great idea, especially if you log into remote file servers regularly. Certainly it's an idea good enough for Apple to resurrect the Keychain from the dustbin. You can expect to see its use eventually become as common as drag and drop.

remote servers with files on your own system) that the Mac OS 9 Network Browser doesn't offer. But if you connect to an FTP server only once in a blue moon, the Network Browser should suffice.

Far-Flung AppleScript Sharing files isn't the only new feature making the move across the Internet in Mac OS 9—AppleScript's going along for the ride, too. Previous versions of the Mac OS let you run AppleScripts that could control programs running on other Macs, but those Macs had to be on the same AppleTalk network. Now you can use AppleScript to control correctly configured Macs anywhere on the Internet—as long as the Mac on the other end has Program Linking turned on in the File Sharing control panel. For example, you could use AppleScript to extract an image from a scriptable database application on a Mac in Miami and then place that image into a QuarkXPress document on a Mac in Seattle—while all the while, you're in Dallas.

Mac Up-to-Date

With Mac OS 9, Apple goes beyond simply using the Internet as a place Mac users can go to find and share information—the company uses it as a way to keep your version of Mac OS 9 up-to-date.

Instant Update Apple frequently releases new versions of one piece or another of the Mac OS—an updated version of QuickTime, an improved FireWire driver that speeds up your external FireWire hard drive. It can be a full-time job keeping up with the latest versions of everything in your System Folder.

But with OS 9's automatic software-updating capability, you don't have to. Just connect to the Internet, open the new ultrasimple Software Update control panel (see the screen shot "Big Button"), and click on the Update Now button, and your task is done for you. You can optionally set Software Update to automatically check for updates and perform them. Eventually, Apple may open this mechanism up to allow other companies to update their software as well—but not yet.

USB on Demand There is one Internet software-installation technology in Mac OS 9 that *is* open to third parties, however: one that lets users install software drivers that make USB devices work. Every time you boot up your Mac, Mac OS 9 checks to see if the proper software is installed for all the currently plugged-in USB devices. If there's a device for which your Mac doesn't have a driver, Mac OS 9 pops up an alert asking if you want to download it from the Web.

It's a great idea, but it may be a while before it works well in practice. This isn't Apple's fault; the problem is that for the Mac OS to properly identify your USB devices, device manufacturers need to store identifying information in their devices' electronics. Most USB-device manufacturers haven't done this yet. If you have one of these unidentified devices, the driver-downloading routine won't know what software to look for.

9's Niceties

Here are a few other noteworthy novelties in Mac OS 9, which don't fall into any particular category.

Alerts By now you're probably used to your Mac talking to you when an alert pops up on the screen and you don't respond to it within a few seconds. But


3Com
More connected.
Catherine Hennes
Textile Designer
Address Book
My favorite weavers and embroiderers; all my friends from art school.
Date Book
Haute couture showings, Monday, 9:00 am; lunch w/Max, Friday, 1:00 pm.
Memo Pad
Preliminary ideas for spring-summer patterns; novels I plan to read.
To Do List
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The Many-Faced Mac

YOU WON'T NOTICE IT AT FIRST; Mac OS 9's Multiple Users capability remains hidden until you turn it on. But once you do, you'll enter a Macintosh world that doesn't look or behave quite like the one you're used to.

Opening up your Mac to multiple users means that you can establish entirely different setups for each person who uses a single Mac. You might, for instance, want to prevent your kid from wreaking havoc on your System Folder. Or perhaps you share a computer with a coworker at the office and he's always changing your application preferences to suit his whim.

Apple has approached this problem in various ways in the past, including via its multiuser product At Ease. But Mac OS 9 is the first version of the Mac OS built from the ground up to support multiple users. Well, OK, maybe from the second floor up: there are still a few kinks to be worked out.

Multiple Control The Multiple Users control panel is the center of the action. From here, you turn on the Mac OS's support for multiple users. One user is created automatically: you, the "owner" of the computer. As the owner, you experience your Mac pretty much as you always have. You see the standard desktop, you have access to all the files on your hard disks, you can use any application you want, and so on.

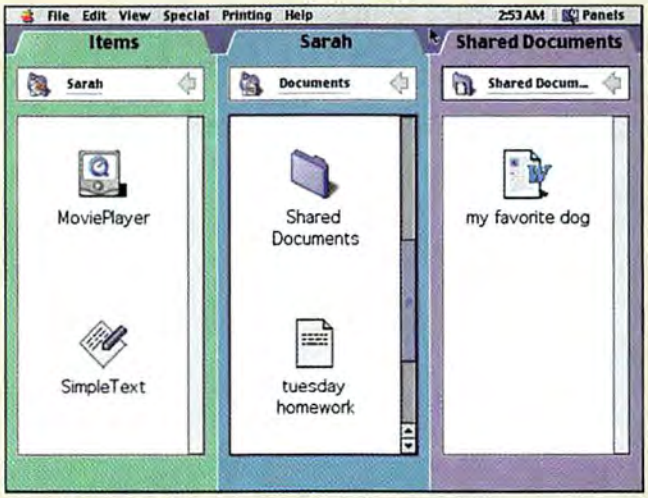
Also bestowed upon you is the power to create additional users. Each new user can be either a *normal* user, a *limited* user, or a *panel* user. Turning on the Multiple Users control panel creates a Users folder at the root level of your start-up disk. Each time you create a new user, the system creates a new folder within the Users folder. Inside each user's folder are stored various system and application preferences and (for limited and panel users) personal documents.

Normal users have pretty much the same privileges as you, the owner. You can even give them the ability to create and modify other user accounts if you want. They get their own separate desktop, however, which they can customize and add their own files, folders, and aliases to.

Limited Users Limited and panel users have a more restricted experience. They can launch only those applications the owner gives them permission to access. The owner can also create a specific list of CDs and DVDs that limited and panel users are allowed to view. Limited and panel users also can be denied access to control panels, to certain Apple-menu items, to the Chooser and Network Browser, and to printers.

Panel Discussion For panel users, the traditional desktop view is replaced by a set of colorful windows that allow them to see only their own personal documents folder and their Items folder, where icons for authorized applications can be found (see the screen shot "Pretty Panels"). An additional panel appears when a CD-ROM or DVD-ROM is inserted.

Limited as well as panel users (at the owner's discretion, of course) can also have access to a Shared Documents folder, where files that have been made available by other users for public viewing are stored. Note that this Shared Documents folder is simply a storage bin for files that limited and panel users on the same machine want to exchange with each other—it bears no relationship to file sharing over a network.



Pretty Panels Panel users don't see the Finder at all—they get a series of colorful file folders containing big icons instead.

A limited user's desktop looks a lot like a normal desktop, but it has a couple of new folders on it. The Items folder contains aliases to the applications that the user is permitted to open. A second folder, labeled with the user's name, contains that person's personal documents. And the user can create and modify files only in the personal folder.

Perhaps it's obvious, but just for the record, turning on Multiple Users requires that users, including the owner, log in and out before and after using a Mac (see the screen shot "Identify Yourself"). When you boot up a multiple-user Mac, a log-in dialog box containing a list of users appears. (In higher-security environments, you can optionally force users to type their name rather than pick it from a list.) To log in, you select your name from the list and type your password. Or, if you prefer, you can speak it. Voice verification is an option that can be enabled individually for each user. To log out, you select Logout, a new addition to the Finder's Special menu, or type ⌘-Q.



Identify Yourself Once Multiple Users is turned on, you have to log in before you can start using your Mac.

Overall, Apple's done a credible job with this first implementation of Multiple Users. Still, there are a few wrinkles to be ironed out. Setting user options, particularly selecting the list of applications to which each user has access, is tedious and time-consuming.

Also, for application preferences to work properly, a program has to know to create not just a single set of preferences in the System Folder's Preferences folder but a unique set of preferences in each user's Preferences folder. Not even the latest releases of some popular software have the new routine down. Microsoft Word 98 and Excel 98 do it right; Photoshop 5.5, on the other hand, maintains only a single global set of preferences.

All this is going to take a bit of sorting out. Our recommendations: proceed with caution, do a test drive before you go full speed ahead in an office or a classroom, and expect more than the usual number of tech-support requests.



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now the Mac OS is a bit more clever about getting your attention for alerts that require a response. Instead of hearing the staid old standard "Alert," you'll now be treated to a variety of warnings, including such entertaining gems as "Oh, my," "Rats," and "It's not my fault."

Not all alerts are so important that you need to drop everything and deal with them immediately, however. Some are merely informational: a warning that your printer is out of paper, for example. In Mac OS 9, these alerts have a new look. They're small, yellow windows you close by clicking on the box in the upper left corner, not via an OK button. So if you want to let them hang around for a while before you dismiss them, you can.

File Encryption At last, you can password-encrypt individual files right in the Finder. Just click on a file, select Encrypt from the File menu (or control-click on the file and choose Encrypt from the contextual menu), and type in a password, and your file will be coded so that nobody can read it without knowing the password. You can tell a file is encrypted by looking in the lower left corner of its icon: encrypted files' icons will have a small key superimposed.

Encryption works only for individual files—you can't encrypt a folder (unless you want to encrypt every file in that folder, one by one). File encryption can work hand in hand with the Keychain (see the sidebar "The Keychain Returns"); if you take advantage of this connection, you don't have to remember each individual file's password to be able to decrypt and open it, as long as the Keychain is unlocked.

Double-clicking on an encrypted file pops up a dialog box where you can enter its password. (If the file's password was stored on the Keychain, you don't see this box—the file will decrypt and open automatically.) Alternatively, you can select the file and choose Encrypt—yes, it says Encrypt, not Decrypt—from the File menu. It's mildly annoying that you can't decrypt a file without opening it. An encrypted file that has been added to the Keychain gets removed from the Keychain's list when it is decrypted.

Voice Recognition With Mac OS 9, your Mac will listen to your voice better than it ever has before. No, the Mac OS won't let you dictate text via a microphone—for that, you'll need forthcoming Mac versions of speech-recognition products such as IBM's ViaVoice or Dragon Systems' Naturally Speaking, or the Mac-only iListen, from MacSpeech. But it will let you log into your Mac (see the sidebar "The Many-Faced Mac") simply by speaking your name and repeating a passphrase that helps it identify your voice.

Beyond that, Mac OS 9 provides several improvements to Apple's PlainTalk speech-recognition engine. In previous versions, PlainTalk used one vocabulary that was in action systemwide. In Mac OS 9, that vocabulary can vary from program to program, a trick that will improve the speed and reliability of speech recognition.

Bigger, Faster, More Some limitations of the Mac OS that most regular users never bump up against—but that are the bane of the most powerful power users—are fixed in Mac OS 9. Files can be as large as 2 terabytes (that's 2,000 gigabytes!), and the number of open files allowed in the system has been increased. Mac OS 9 also offers improved support for Macs that have multiple processors, which begs the question: when will Apple release a Power Macintosh G4 that has multiple G4 processors?

The Last Word

There's no doubt about it: Mac OS 9 has some great new features. Sherlock is now much more convenient to use. (Of course, Internet search engines still leave much to be desired, but there's not a lot Apple can do about that.) Some users will find the multiple-user feature alone worth the cost of the upgrade. It will help out in education settings, no doubt, but most users will probably never bother to turn it on. And allowing file sharing over the Internet is a solid step toward making the Mac a first-class Netizen.

But despite these useful features, it's important to realize that Mac OS 9 isn't nearly as major an update as Mac OS 8 was. It represents more of an evolution of things that were initiated in OS 8 than a big leap forward.

Is Mac OS 9 worth its $90 price tag? As always, it's important to weigh carefully the benefits of this update against the hassle of upgrading your Mac. If you need support for multiple users, can't wait to get your hands on the Keychain, are a huge fan of searching with Sherlock, or just want to keep your Mac current, Mac OS 9 will probably be worth it. But if what Apple's cooked up for Mac OS 9 doesn't excite you, then perhaps you *should* consider sitting this one out and waiting for Mac OS X to arrive. **m**



Big Button Want to update your Mac OS software over the Internet? Just click on the prominent Update Now button in the Software Update control panel.

Contributing Editor HENRY BORTMAN is a science and technology writer who has been writing about the Mac OS for more than ten years.

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HALL OF FAME
GHF
GHF

1999 MACWORLD GAME HALL OF FAME

Pittsfield, Massachusetts, home of the Macworld Game Hall of Fame, is ordinarily a tranquil town. Citizens of Pittsfield speak in low tones, walk about in soft-soled shoes, and break their fast with crunchless cereals. We, the members of the Game Hall of Fame executive committee, are sensitive to the town's ways and do our best to maintain the calm of the community by testing the latest, thundering shoot-'em-ups in a soundproof bunker and holding the Hall's annual holiday party in nearby New Lebanon, New York.

This custom of quiet may explain why, when the town council heard our latest proposal and screamed as one, "What do you *mean*, you want to add another wing!?" the ensuing ruckus made the front page of the following day's *Pittsfield Picayune*. Before the controversy spreads further, allow us to explain our position.

It was a banner year for Macintosh gaming. Breaking the trend of recent years, new Mac games appeared on store shelves with remarkable regularity. When not otherwise occupied releasing these new games, companies such as MacSoft, Aspyr, Graphic Simulations, Bungie, Sierra, and LucasArts churned out press release after press release announcing forthcoming titles that would appear in Mac-compatible form. Frankly, our exhibit area is nearly full, and we have barely enough space for the games we scrutinized this year. If these press releases are true and we continue to see more and better games, we'll have to display next year's winners in the decrepit Winnebago Steven Levy left parked out back in 1993—unless we get the go-ahead to build a new wing.

Thankfully, we've managed to clear a space in the entryway of our venerable institution for this year's inductees. And how appropriate—where better to display the greatest Mac games from what may well have been the decade's finest year in Mac gaming?

BY CHRISTOPHER BREEN

HENK DAWSON

BEST FLIGHT SIMULATION

Falcon 4.0 ★★★★

LIKE MANY VARIETIES OF GAMES, FLIGHT simulations have been underrepresented on the Macintosh. While both Graphic Simulations' F/A-18 Hornet and Parsoft's A-10 Attack are fine combat flight sims, they've gotten a bit long in the tooth, and it was time for something fresh. Along came MacSoft's Falcon 4.0, an ultrareal F-16 simulation.



The word *hefty* applies to most aspects of Falcon 4.0—hefty hardware requirements; hefty theater of operations (the Korean peninsula); and, at 600-plus pages, a hefty manual. Given this enormous tome, it should come as no surprise that this bird is a challenge to fly, land, and fight; mastering the game is a task that takes weeks rather than hours. But the rewards are generous. If you want to have a fair inkling of what flying a modern jet fighter is really like, getting a grip on all that Falcon 4.0 offers will do a lot to further your education. There simply isn't a more realistic combat sim on the Mac today.

Before hopping into Falcon 4.0's cockpit, make sure your Mac has 3-D–acceleration hardware. Although the game doesn't require this hardware, Falcon 4.0 is breathtaking with a Rage 128 chip or some variety of Voodoo card.

WHY IT'S COOL: The next best thing to the real thing. **WHO IT'S FOR:** Virtual pilots with hefty hardware who are willing to devote lots of time. **FROM:** MacSoft; 612/249-7600, www.wizardworks.com/macsoft; $50.

BEST REAL-TIME STRATEGY GAME

Myth II: Soulblighter ★★★★½

IT WAS MORE THAN JUST A LUCKY GUESS that inspired us to include Myth II: Soulblighter—the sequel to Myth: The Fallen Lords—in last year's list of Game Hall of Fame hopefuls for 1999. The original Myth was an outstanding real-time war game that afforded you the opportunity to command the legions of the Light in gorgeous 3-D landscapes. Though the sequel does allow us to renew our battle with the forces of the Dark, Myth II is much more than just a rehash.

The original elements of the game remain—success comes to those who master the art of reconnaissance, learn the benefits of varying troop formations, and hold the high ground. Myth II adds enhanced graphics, a simplified interface, indoor environments, augmented character classes and weapon sets, and expanded network play.

In addition, new tools let you create and modify maps and characters. Typical Myth II players probably won't use these complicated tools, but every player can benefit from the fruits of another's labor. As a result, you can download fan-created Myth II scenarios, such as the ones that put you in command of a World War II army or of troops that would appear more at home in a Lego set. It's a great game that keeps on giving. What more could you ask for?



WHY IT'S COOL: Lovely landscapes, bloody battles, realistic combat tactics. **WHO IT'S FOR:** Would-be generals who don't mind spilling their troops' blood as long as the other side spills more. **FROM:** Bungie Software; 800/295-0060, www.bungie.com; $50.

BEST SHOOT-'EM-UP

Quake II ★★★★

ID SOFTWARE DOES ONE THING: 3-D shooters. But it does that one thing very well indeed. The developers at Id originally created Quake II for the PC over two years ago. It's been a really long wait, but 1999 finally brought



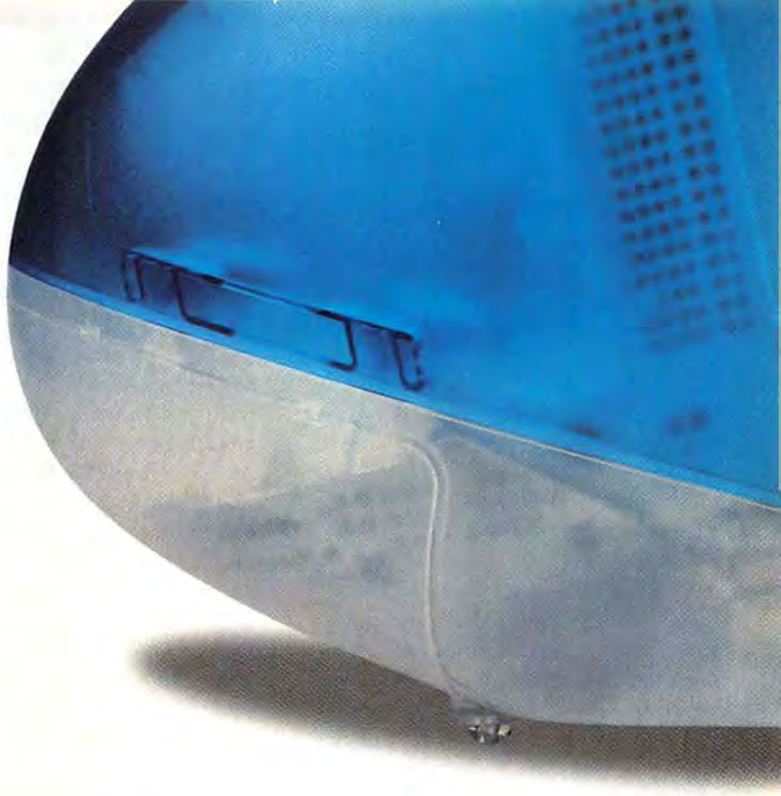
Quake II to the Macintosh.

If you've played any variety of first-person shooter, you know the basics of Quake II—shoot anything that moves, and unless you've reduced your target to its component parts, shoot it again for good measure. This is particularly important in Quake II because most of the baddies, if left in one piece, issue a powerful final blast before shuffling off this mortal coil.

Quake II is yet another game that benefits from 3-D–acceleration hardware. Not only does the game take on a more lushly menacing appearance when run through a Rage 128 or Voodoo card but the frame rate picks up significantly as well.

Quake II doesn't offer a storyline any more compelling than the original Quake's, but network gaming benefits from the same enhancements found in the single-player game—a slew of new weapons, the ability to duck, and a wider variety of maps. In either single-player or multiplayer mode, for careening-through-corridor-carnage satisfaction, Quake II is a must-have.

WHY IT'S COOL: Well, it's Quake, for cryin' out loud! **WHO IT'S FOR:** Fans of first-person shooters. **FROM:** Activision; 310/255-2000, www.activision.com; $45.



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BEST WORLD-BUILDING SIMULATION

Caesar III ♦♦♦♦

IF YOU WANTED TO ESCAPE THIS hurly-burly world temporarily for one of your own design, 1999 was the year to do it. Three solid world-builders found their way to the Mac this year: Electronic Arts' SimCity 3000; PopTop Software's Railroad Tycoon II; and our next inductee, Sierra's Caesar III.

Caesar III is more than just SimCity with a toga. This delightfully entertaining simulation allows you to build your very own Roman Empire. In the process you must contend with structures that routinely collapse, denarii-pinching emperors who keep a watchful eye on your budget, a populace that demands high-priced entertainment, and finicky gods whom you must placate and please. Caesar III's graduated, mission-based



play allows you to dive quickly into the game. As you grow from lowly Citizen building a backwater province to Emperor of Rome, new challenges unfold. And unlike SimCity, this game actually makes it possible to *win*.

Of course, if you'd rather not pursue a career in government, you're free to build and manage a Roman city with Caesar III's City Construction Kit. Either way you play, it won't be long before you, too, join legions of other Mac users and shout, "Hail, Caesar III!"

WHY IT'S COOL: Good graphics, challenging game play, you can actually win. **WHO IT'S FOR:** Those who wish to discover whether you *can* build Rome in a day. **FROM:** Sierra On-Line; 425/649-9800, www.sierra.com; $50.

BEST NETWORK GAMES

Quake III: Arena
Unreal Tournament

HERE AT THE HALL, THE SELECTION COMmittee occasionally agrees to disagree. Such was the case when we turned our attention to 1999's Best Network Game. All committee members had an opportunity to blow the bejeezus out of fellow committee members in networked games of the then-unreleased (and hence currently unrated) Quake III: Arena, from Activision, and Unreal Tournament, from MacSoft. After weighing the pluses and minuses of each game, we came to this conclusion: They both kick serious patoot.

Fans of Id Software's frantic network-gaming style will love Quake III: Arena. The action is fast and furious; the levels are nicely designed; Id's done a beautiful job with the game's lighting effects; and when you take out an opponent, he or she explodes in a gratifying shower of gore.

While Unreal Tournament doesn't offer quite the frenetic experience of Quake III: Arena, it contains a vast collection of gloriously rendered levels, has a wide variety of games, and includes some intriguing new weapons. Both games feature a single-player mode with bots whose AI (finally) has more in common with human behavior than with that of department store mannequins.

These games demand fast hardware—a G3 at least—and you should play both with hardware acceleration. If your Mac meets these requirements, get both.

WHY THEY'RE COOL: Great graphics, frantic action. **WHO THEY'RE FOR:** Network gamers with bloodlust and serious hardware. **FROM:** Activision (Quake); 310/255-2000, www.activision.com; $50. MacSoft (Unreal Tournament); 612/249-7600, www.wizardworks.com/macsoft; $45.



Special Awards

BECAUSE THE HALL IS SO PRESSED FOR space, we lack the room to honor everyone who deserves acclaim. We do, however, want to give credit where credit is due. We'd therefore like to acknowledge, in our own humble way, the following. . .

BEST MAC GAME SUPPORTER

Apple Computer

It would have just been another mediocre year for Mac gaming without the tireless efforts of Apple's game group. These folks made sure the best games came to the Mac, and nudged their colleagues to provide hardware powerful enough to play those games.

BEST HARDWARE ACHIEVEMENT

ATI Technologies

Apple's Power Macintosh computers finally shipped with robust 3-D–graphics hardware—ATI's Rage 128 chip set. Users who wish to play RAVE and OpenGL games on their PCI Macs can get the same acceleration with ATI's Rage Orion card.

BEST NONHARDWARE HARDWARE ACHIEVEMENT

3dfx

For Glide games, you must have a card with one of 3dfx's Voodoo chips. Thankfully, because 3dfx has released Mac-compatible Voodoo 2 and Voodoo 3 software, Mac users no longer have to pay a premium for special Mac versions of these cards. Of course it's a strategy designed to sell more 3dfx products, but who cares? Mac users can finally get great hardware acceleration for the same prices as their PC brethren.

BEST INTERNET GAMING ACHIEVEMENT

GameRanger

Macintosh gamers now have a Mac-specific online gaming service, thanks to Scott Kevill's GameRanger (www.gameranger.com). With GameRanger, an Internet connection, and a copy of your favorite network game, you're never at a loss for online opponents.

BEST PORTING HOUSE

Westlake Interactive

It's no secret that most games appear first on the PC. Someone must port those games to the Macintosh, and the people who do it best are Mark Adams and the crew at Westlake Interactive (www.westlakeinteractive.com).

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director of web development

Dallas: Lead a top-notch team of design, technical, and editorial staff to create a dynamic, user-friendly website. This position requires excellent technical, communication, leadership and problem solving skills. Demonstrated ability to ensure that projects are completed on schedule while maintaining budget goals is essential, as is the ability to guide and motivate a diverse workgroup.

online entertainment editor

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senior data architect & data modeler

Providence: Large investment company is looking for a Senior Data Architect / Data Modeler to review, assist, and provide technical feedback to the project team before the detailed design phase begins. Oracle and DB2 experience is preferred, but knowledge of other relational database technologies is acceptable.

art director

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online marketing specialist

St. Louis: Manage online advertising from proposal and development through budgeting and production. Write creative briefs, secure approvals, finalize buys, monitor postings, and analyze traffic reports. Must have strong written, organizational and communication skills, be detail oriented, and familiar with advertising media. Web experience preferred. A bachelor's degree is required.

systems support technician

Philadelphia: Develop, install and support complex systems in a fast-paced news media company. Work with various types of software operating systems, including DOS, Windows 3.1 / 95 / 98 / NT 4.0 / NT Server, Unix, Linux, Novell, and Macintosh OS 7.0 / 8.1. A bachelor's degree in computer science, industry certification or four years of experience is necessary.

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The Great Contenders

THE WINNEBAGO PARKED BEHIND THE GAME HALL OF FAME, though unsightly, does provide one service: it hides the escape hatch of the Hall's fabled underground testing facility. It's to this facility that we drag game companies for previews of their upcoming products. Our legal department has forbidden us from revealing too much about these games, but suffice it to say that based on what we've seen so far, we requested that new wing none too soon.

If we get the additional space, we may have to open a room dedicated solely to Bungie Software. Bungie's Halo, a beautifully rendered third-person war game, is on track to be everyone's game of the year—regardless of platform—in 2000. This 3-D, hardware-dependent game, featuring both single-player and multiplayer modes, takes place on an artificial, ring-shaped planet and pits humans against an alien race. Both races have access to a remarkable array of weapons and vehicles. Unlike many current network games, Halo focuses on cooperative play. Bungie remains uncommitted to the number of players the game will support, but the company assured us that no fewer than 32 people will be able to play at the same time.

Dynamix will join the cooperative network-game action with its Tribes 2. Like Halo, Tribes 2 features beautiful graphics, includes vehicles you and your pals can tool around in, and stresses cooperative play in its network mode—it will also include a single-player game featuring bots.



Halo

Terminal Reality brings Nocturne, a third-person spookfest, to the Mac. In this gruesome game you do battle with the legions of the undead—werewolves, zombies, ghouls, and vampires. The graphics are gruesome—and, well, *graphic*—but if you're looking for a frightfully entertaining game experience, Nocturne should be a scream.



Nocturne

BEST ARCADE GAME

Bugdom

BRIAN GREENSTONE AND HIS PALS AT Pangea Software have a tradition of making attractive games—Weekend Warrior; Nanosaur; and one of the Hall's all-time favorites, Power Pete. Pangea's latest effort is, quite literally, cute as a bug, and as such couldn't have a more appropriate name—Bugdom.



Bugdom's goal is simple. In the guise of Rollie McFly, a colorful roly-poly bug, you must help free the ladybugs captured by ne'er-do-well fire ants under the control of King Thorax. To do so, you rush around the ten levels of Bugdom (these include The Lawn, The Pond, and The Forest) kicking down the spiderweb cages that contain the fair ladybugs, all the while avoiding or attacking your insectoid—and in The Pond, your piscine—opponents.

No one does RAVE hardware acceleration better than Pangea, and it therefore comes as no surprise that Bugdom is lovely to look at. But the game does require some variety of ATI 3-D–acceleration hardware. If your Mac lacks such hardware, you can get it by adding ATI's Rage Orion video card to your PCI-based Power Mac.

Bugdom's action is frantic enough for hard-core arcade gamers, yet nonviolent enough for children. Best of all, it's available only on the Macintosh.

WHY IT'S COOL: Wonderful graphics, fast action, appropriate for children. **WHO IT'S FOR:** Arcade-game lovers with RAVE hardware acceleration. **FROM:** Pangea Software; 512/367-8116, www.pangeasoft.net; $38.



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BEST SPORTS GAME

Madden NFL 2000

AMONG OTHER THINGS, 1999 WILL BE known as the year that a Mac game publisher finally brought one of Electronic Arts' outstanding sports games to the Mac. That Mac publisher is Aspyr Media, and the game is Madden NFL 2000.

Although Aspyr hadn't released Madden as we finished our balloting, we saw enough of this game to realize that it was too important and too good to ignore—too important because Mac gamers have been denied front-line sports games for far too long, and too good because Madden 2000 is among the finest football simulations currently available.

The game features top-notch graphics and animation under hardware acceleration, responsive controls, two styles of play (a run-and-shoot Arcade mode and the more realistic Exhibition and Season modes), a Franchise selection where you can manage a team over 32 seasons, and a Great Games mode. The Great Games mode allows all you Monday-morning quarterbacks to take part in ten classic football matches of the past.

John Madden is hardly the kind of guy to toss you onto the gridiron without some training. Madden 2000 also offers Practice and Situation modes



where you can hone your offensive and defensive skills—repeatedly running a quick screen pass, for example.

We're thrilled to have Madden finally standing on the Mac's sideline. We're sure you will be, too.

WHY IT'S COOL: You want football on the Macintosh? This is it. **WHO IT'S FOR:** Those who've been dying for Macintosh sports games. **FROM:** Aspyr Media; 888/212-7797, www.aspyr.com; $50.

BEST TRADITIONAL GAME

Deathground ♦♦♦♦

BERT, ONE OF OUR MOST CAUTIOUS committee members, shook his head when the rest of us agreed that Freeverse's Deathground takes the prize for best traditional game of the year.

"No," he protested. "When you say 'traditional games,' people think of cribbage or chess or even kick the can. No



one has fond childhood memories of gathering around the kitchen table to play some game called Deathground."

And so we explained for the umpteenth time that Deathground is, in essence, the board game Risk set to a 1920s gangster theme. We emphasized that although the game can take place in the New York boroughs, the United States, or—like its Parker Brothers counterpart—across the globe, it's basically the game we all grew up with.

"What about the humorous dialogue?" Bert challenged.

"Well, yes," we conceded, "the game does play funny sound bites when someone gets rubbed out."

"And don't forget the special rewards that provide players with additional troops or randomly rub out a few of another player's troops."

"Okay, Bert," we sighed, "it's not exactly Risk, but it's close enough for us and we all love the game, so pipe down, ya big lug."

WHY IT'S COOL: It's funny, it's challenging, it's Risk. **WHO IT'S FOR:** Traditional gamers who can never gather enough friends to play the board game. **FROM:** Freeverse; 212/929-3549, www.freeverse.com; $30.

BEST ADD-ON

Starcraft: Brood War ♦♦♦♦½

ADD-ON SCENARIO PACKAGES ARE TYPIcally no more than a regurgitation of the original game—but there are those rare exceptions. One outstanding example is Blizzard's Starcraft: Brood War, an expansion set that actually improves on Starcraft, one of the greatest real-time strategy games to come to the Mac. How could Blizzard enhance a game so fine that we inducted it into last year's Game Hall of Fame a full six months before its final release? Let us count the ways.

To begin with, Brood War increases your strategic options by introducing new units to Starcraft's three races. The Terran's Medic unit, for example, can heal your marines and blind your enemies with a flash-grenade launcher. In addition, the game's cut scenes are up to Blizzard's usual brilliant quality, and the storyline may be even more compelling than the original. Finally, because Brood War is an add-on that requires you to have Starcraft to play the game, Blizzard rightly expects that you've worked your way through Starcraft's harder missions. So, though Brood War is more difficult than Starcraft, with that difficulty comes the knowledge that you've completed some of the toughest missions Blizzard could design. Not a bad reward from a simple add-on, eh?

WHY IT'S COOL: More brilliant Starcraft action, expanded units. **WHO IT'S FOR:** Starcraft devotees, real-time–strategy enthusiasts. **FROM:** Blizzard; 800/953-7669, www.blizzard.com; $30. m

When not otherwise engaged in rearranging the exhibits at the Game Hall of Fame, Contributing Editor CHRISTOPHER BREEN pens *Macworld*'s *Game Room* column.





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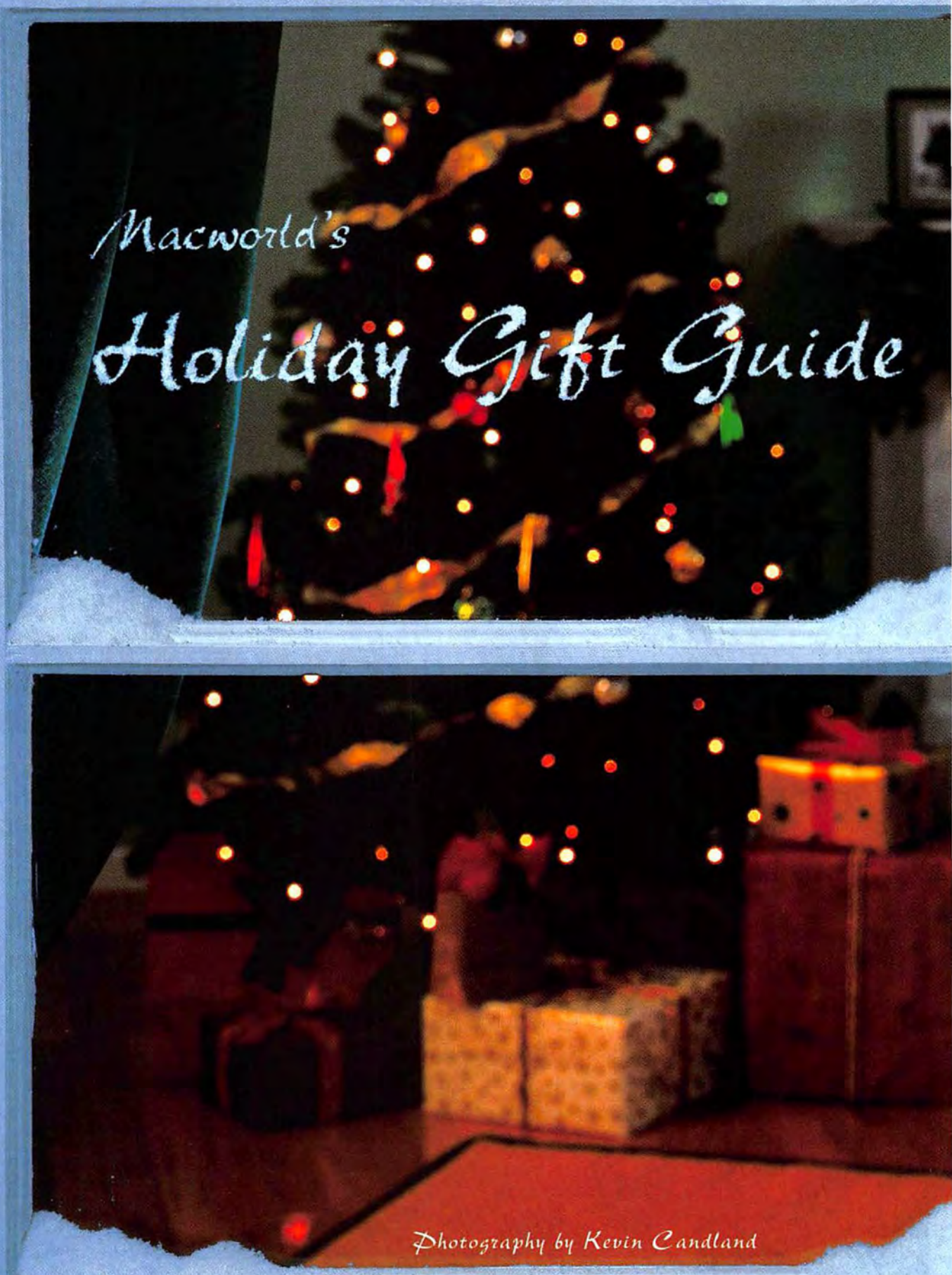
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Macworld's Holiday Gift Guide

Photography by Kevin Candland



Once again that time is upon us—time to clear a corner of the living room for the Christmas tree, time to clean last year's candle wax off the menorah. More than that, though, it's time to find presents for all those people you love (or are at least related to). *Macworld* is here to help. We've sifted through loads of products to find great gift ideas. And if you'd rather craft your own, we've assembled a guide to making personalized presents with your Mac. So pull on your slippers and get that fire roaring. It's time for *Macworld*'s Holiday Gift Guide.

Perfect

12 Mighty Good Gift Ideas for the Folks on Your Holiday List



DISNEY'S MAGIC ARTIST STUDIO ♦♦♦♦
CRAYOLA MAKE A MASTERPIECE ♦♦♦½

Forget finger paints and coloring books—today's kids let their artistic side shine through the computer, using applications like Disney Interactive's Disney's Magic Artist Studio and IBM's Crayola Make a Masterpiece. Either of these CD-ROMs is sure to please a kid who loves to paint.

Disney's Magic Artist Studio, designed for kids of all ages, is the lighter-hearted of the two. Its tools include the usual painting tools—paintbrush, eraser, spray can, and so on—but they're animated and goofier than most. For example, the ImageTube tool lets you create lines that resemble objects such as hissing steam pipes or wriggling earthworms. And if you decide to trash your masterpiece and start over, a click on the handle at the top of the screen sends the drawing down the toilet—complete with flushing sounds.

Even more engaging are Magic Artist Studio's magic stamps, featuring all your favorite Disney characters and a gallery of colorful backgrounds. To add a stamp to a painting, simply drag it over the canvas, where you can color it in or make it dance. Instrumental music, running the gamut from oompah to disco, accompanies the animations. But before you reach for your credit card, make sure your Mac is up to snuff—Magic Artist Studio demands an iMac or a Power Mac G3 with 70MB of free disk space.

Crayola Make a Masterpiece, for kids 5 to 12, takes a somewhat more scholarly approach to painting. Scribble, an animated artist with a heavy French accent, guides you through the program, and you'll find notes on famous painters and art theory in Scribble's journal.

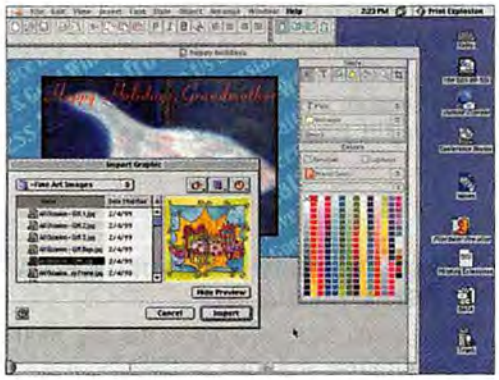


But attempts at creating serious artwork won't prevent your budding Rembrandt from enjoying herself. The Magic Effects Tool, one of the many fun touches in Make a Masterpiece, lets you transform your drawings with a variety of painting techniques, from pointillism to solarization. And the program lets you add animated stickers to drawings, although without musical accompaniment. Make a Masterpiece is less responsive and polished than Magic Artist Studio, but it's still a great holiday gift buy.—FRANKLIN, ALYSSA, AND ADAM TESSLER

Disney Interactive; 800/900-9234, www.disneyinteractive.com; $30. IBM; 800/320-8377, www.ibm.com; $20.

Presents





PRINT EXPLOSION ♦♦♦♦

Know someone who loves holidays but hates shopping for the perfect card? Nova Development's Print Explosion lets creative types add a personal touch to dozens of projects, including personalized party supplies, stationery, calendars, and crafts. And with more than 2,000 greeting-card designs, Print Explosion has a card for just about every occasion, from New Year's to tooth-fairy visits to the Super Bowl. You can even apologize for copping an attitude.

You start by selecting a project and template from a menu or by creating your own design using one of more than 50,000 graphics. You can edit the templates—to transform that peaceful nature scene into a sci-fi battleground, for example—and import family photographs and other images from your scanner or PhotoDiscs. But don't expect to touch up or add special effects to your photos using Print Explosion; other than resizing and colorizing, the program offers few image-editing tools.

You'll appreciate Print Explosion most when it's time to print your project: instead of worrying about which side of a greeting card to print first or which images you need to place upside down, just let the program set up your pages to print correctly. Print Explosion does the work, leaving you more time to enjoy the holidays.—KATHRYN LUNSFORD

Nova Development; 800/395-6682, www.novadevelopment.com; $50.



KEYSPAN USB PDA ADAPTER ♦♦♦♦

Palm organizers are the PDAs of choice for Mac users. Unfortunately, Palm PDAs and USB-equipped Macs don't play well together: Palm's HotSync cradles support only serial connections. Keyspan's incredibly simple—and very affordable—USB PDA Adapter solves that problem. The included CD contains everything you need, and the installation process is so painless you don't even have to restart your Mac to use the adapter. Keyspan's adapter is slightly slower at HotSync sessions than Entrega's more expensive USB to Serial Converter for Macintosh, but if speed isn't your biggest concern, the USB PDA Adapter is the smartest and least-expensive way to connect your Palm to a new Mac.—JEFF PITTELKAU

Keyspan; 510/222-0131, www.keyspan.com; $39.

COOLPAD ♦♦♦♦

Apple's new PowerBooks and iBooks are hot—really hot. If you've ever picked one up after it's been cooking on your desk for a while, you know we're not just referring to the sleek design: either portable can reach blazing temperatures in a hurry.

To keep things cool, Road Tools offers the elegant, simple CoolPad and its stylish new sibling, the iCool-Pad, which features iBook-coordinated colors. Using rubber feet attached to two sheets of plastic, both devices elevate your portable just enough to allow air to circulate beneath it, dissipating heat more efficiently. They tilt your Mac forward (the iBook version tilts it slightly more) to give the keyboard a more traditional slant, and they swivel—handy when you need to make presentations to small groups or spread your work across two airplane seat trays. —MICHAEL PENWARDEN



Road Tools; 603/926-9000, www.roadtools.com; CoolPad, $20; iCoolPad, $23.

YEAR 2000 GROLIER MULTIMEDIA ENCYCLOPEDIA ♦♦♦♦

Despite the Y2K hype, life in the year 2000 probably won't be too different from life in 1999. So it is with the Year 2000 edition of Grolier Multimedia Encyclopedia: although it features some new entries and a spruced-up interface, the latest version of the reference title offers little more than its predecessor. However, it's nevertheless a great learning resource, and it's the only Macintosh encyclopedia that has true multimedia features.



Aimed primarily at high schoolers, the two-CD set features 37,000 articles, with links to an additional 22,000 online entries. You also get 15,000 images, 177 QuickTime videos, 150 QuickTime VR panoramas, a comprehensive atlas, and a 250,000-word dictionary. The well-designed interface lets you browse articles, search topics, and organize information. A new Millennium feature highlights key events of the past 1,000 years; also new are user-selectable interface themes, with sounds and background graphics. The new features aren't quite enough to justify the $40 upgrade price if you already own the 1999 edition, but the program still reigns supreme among Mac encyclopedias.—STEPHEN BEALE

Grolier Interactive; 203/797-3530, http://gi.grolier.com; $60.

CEREMONY OF INNOCENCE ♦♦♦½

Whether or not you're a fan of Nick Bantock's Griffin and Sabine trilogy, you'll enjoy the multimedia-enhanced Ceremony of Innocence (developed by Real World Multimedia and distributed by Khyber Pass Entertainment). Bantock's tale of the mysterious correspondence of two lovers remains intact, but instead of the original's tactile intimacy, the CD-ROM offers a more complex world where art, video, and user interaction meet to tell the story.



As postcards and letters arrive on your desktop, you use the mouse to figure out how to reveal their contents. The cursor's appearance and movement, as well as the way objects react to it, change with each card—a very Zen, and often frustrating, approach (be prepared to fruitlessly bang a fish on the head before solving one of the puzzles). At other times, the experience is magical. Gently lift a mask to reveal a window; a samurai approaches, then withdraws into darkness. Video enhances the mood, as does the narration of Isabella Rossellini. The only downside is an incomplete set of instructions that seem geared toward Windows users.

The story of Griffin and Sabine doesn't *need* a CD-ROM, but Ceremony of Innocence lets you explore the story using a medium that has its own rewards.—FRITH BREITZER

Khyber Pass Entertainment; 888/478-1177, www.kpdistribution.com; $45.

UNIMOUSE ♦♦♦♦



Contour Design's UniMouse is the ideal gift for anyone who's ready to ditch the abysmal round mouse that comes with iMacs and G3s. Contoured to nestle comfortably in the average user's palm, the UniMouse has rubberized sides that make it easy to grip the mouse. Using special control-panel software available from the company's Web site, you can adjust the UniMouse's sensitivity in 15 discrete steps. The control panel also lets you program the three buttons to perform functions such as clicking, dragging, and scrolling. Whichever option you choose, the UniMouse is a joy to use.—FRANKLIN TESSLER

Contour Design; 800/462-6678, www.contourdesign.com; $43.

STAR WARS: EPISODE I INSIDER'S GUIDE ♦♦♦♦

If you're a *Star Wars* fanatic who disagreed with the critics' negative assessment of *Star Wars: The Phantom Menace*, LucasArts has the gift for you—the Star Wars: Episode I Insider's Guide. Even if you hated the movie but still believe that George will get it right next time, this two–CD-ROM set may be a good gift.



The Insider's Guide contains the entire screenplay (with annotations) from the movie, the trailers for *The Phantom Menace*, trivia questions, and exclusive interviews with George Lucas and other members of the *Star Wars* crew. You can even peruse a catalog of *Episode I*–related merchandise, although such commercial pitches are largely cordoned off from the other, richer content. The folks at LucasArts have a good sense of what *Star Wars* fans are likely to take an interest in, but the CD-ROM is not so esoteric as to frighten those who are just entering the *Star Wars* universe.—CHRISTOPHER BREEN

LucasArts; 888/532-4263, www.lucasarts.com; $30.

MUSIC ACE 2 ♦♦♦♦

If you feel your offspring's education isn't complete without a musical component, Harmonic Vision's Music Ace 2 may be the perfect gift. This entertaining CD-ROM introduces such fundamentals as notation and tempo.

Music Ace 2 is broken into three parts—Lessons, Games, and the Doodle Pad. The lessons introduce a particular musical concept, such as note recognition. Maestro Max, Music Ace's jolly Germanic host, explains each concept and presents a series of activities that test your child's comprehension. How quickly the program progresses through each lesson depends on the percentage of correct answers given; incorrect answers prompt the program to offer visual clues. The games are scored exercises that reinforce a lesson, and in the Doodle Pad area, your child can create tunes or listen to musical examples.—CHRISTOPHER BREEN



Harmonic Vision; 847/467-2395, www.harmonicvision.com; $50.

ACS65I SPEAKERS ♦♦♦½

Sure, the iMac is a cute, all-in-one computer, but its built-in speakers are terribly tinny. If you're looking for a gift that enhances both the look and the sound of an iMac, give a listen to Altec-Lansing's ACS65i speakers. This Bondi-blue–and-ice, three-way speaker system features two satellite speakers and a subwoofer with a frequency response of 30Hz to 20kHz, a bass volume control on the subwoofer, and a master volume control on the right satellite speaker. Although they lack the fidelity of a good home stereo, these speakers are serviceable for noncritical listening and robust enough to make gamers happy.—CHRISTOPHER BREEN



Altec-Lansing; 800/258-3288, www.alteclansing.com; $100.



UNCLE ALBERT'S MAGICAL ALBUM ♦♦♦♦

The premise gets kids every time: solving a series of puzzles leads to hidden treasure. But Uncle Albert's Magical Album, from VTechSoft, uses an intriguing story line—along with beautiful, eerie music and graphics—to create a unique experience that goes beyond the typical educational CD-ROM. The story revolves around quirky Uncle Albert, a tinkerer who leaves behind an album full of peculiar photos, creatures, puzzles, and experiments. To solve the mysteries, your child must search every page of the album and pore over videos for clues.

One of the biggest challenges with this type of children's game is allowing room for creativity. It's easy to create puzzles with just one answer, but it's tricky to make puzzles that children can solve in various ways. In this program, one of the many solutions to a spiderweb puzzle is to guide a fly carefully through the web, but distracting the spider with another animal while the fly slips through also works. This variety and unpredictability make Uncle Albert's Magical Album a truly intriguing game for children ten and up.—NANCY PETERSON

VTechSoft; 800/742-1050, www.vtechsoft.com; $25. m

Crafty

Use Your Mac to Make Holiday Gifts with the Personal Touch

When you were a kid, chances are you *made* holiday gifts for your mom or dad: a spiffy robot made of toothpicks, a crayon drawing of the cat, perhaps a woven-lanyard key chain. There's never been a better time to reclaim this tradition from your youth. With several ways to get those crayon drawings and family photos into your Mac and with excellent photo-quality printers selling cheap (see "Color Ink-Jet Printers," *Reviews*, September 1999), it's high time to get artistic and create some homemade gifts.

Lanyards probably aren't your style anymore, but if you want to make cards, calendars, T-shirts, or even a CD-ROM photo album, we've gathered all the tips, tricks, and inspiration you'll need. Let us guide you through getting your images into your Mac, fixing them up, and using them to make cool projects.

Part 1: GETTING IMAGES INTO YOUR MAC

The first step toward making your gifts is getting your photos or artwork into your computer. You could make an investment of hundreds (or thousands) of dollars in a new, high-quality digital camera (see "Digital Cameras Develop," September 1999). Or if you don't want to spend that much money, you could take your film to a photo lab and get digital versions of your pictures for just a few extra bucks.

If you've got a stash of old photographs, however, or if you want to be able to use your kids' (or your own) drawings or other art, your best bet is an inexpensive scanner. And there are plenty available: we looked at eight scanners ranging in price from about $100 to $200 (to see which one we liked best, take a look at the sidebar "Buying the Right Scanner").

After buying your scanner, you've got to learn how to use it. Our advice starts right out of the box. (If you're the lucky owner of a digital camera or if you've got files back from the photo lab, go on to "Part 2: Fixing Up Your Images.")

Unpack and Get Set Up

The next step begins after you pull the Styrofoam and plastic wrap off your new scanner. Some models have a lock that prevents the scan head from moving while the scanner is in transit. Although this protects the machine before you unpack it, you can cause serious damage if you forget to unlock the scan head before you scan (or even turn the machine on). All the scanners we looked at that had locking mechanisms included a notice explaining how to unlock them.

Why so much fuss over the scan head? It does the critical work of capturing the image you're trying to scan. Scanning is a lot like using a photocopier, but instead of simply making a copy, you're transforming the shapes and colors of an object with the scanner into digital information so you can manipulate them in your Mac. A lamp emits light onto the original you place on the glass. This light is turned into digital information by the scanner's "eyes," an array of photosensors called charged-coupled devices and known collectively as the CCD. The CCD sits on—you guessed it—the scan head.

The Software Situation After you've unpacked and unlocked your scanner, it's time to install the software. All the scanners we looked at come with at least two applications: an image-editing application, such as the $49 Adobe PhotoDeluxe 2.0 (800/833-6687, www.adobe.com), and a custom plug-in.

The plug-in interacts with the image-editing application and allows that program to communicate with the scanner. When you install the plug-in, take care to save it in the right place—otherwise your image-editing program may have trouble finding it. If you're using PhotoDeluxe (which comes with six of the eight scanners we looked at), the right place is inside the program's Acquire/Import folder.



Pick Your Picture

Now that you've got your scanner ready, it's time to decide what you're going to scan. Your first impulse will probably be to scan a photograph. After all, what's a holiday card without a picture of the family's smiling mugs? The key to getting a good result is starting with a good image.

If you scan something previously printed at low resolution, however—say, a newspaper article about mom's triumph in the

Creations



city-council elections—you'll get a lower-quality scan and you may see distortion waves (also known as *moiré patterns*) in your image. The Umax and Microtek plug-ins include a feature called Descreen, which is specifically designed to fix this problem. Otherwise, use PhotoDeluxe's Despeckle filter. (Click on the Advanced button, and choose the Effects menu. The Despeckle option is under Noise.)

3-D Scanning Photos and newspaper clippings are great, but as you create your holiday project, why limit yourself to images of flat objects? The world is three-dimensional, and what you scan can be, too. Your scanner can act as a digital camera for anything that fits on its glass: flowers, dreidels, watches, Christmas lights. Take care not to scratch the glass. Also, keep in mind that the scanner can focus only as far as an inch or two off the glass.

Ready, Set, Scan

Once you have your object in hand, you're ready to get on with the business of scanning. First, make sure the glass is spotless. Then if you're reproducing a photo, align it along the edge of the glass so the scanned image will be straight.

Launch your image-editing application. If you're using PhotoDeluxe, select the Get Photo tab. Click on the Scanner button, and choose your scanner. (If it doesn't appear in the Scanner dialog box, it may be under the Other icon.) Once you pick your scanner, the plug-in you installed earlier will open.

You'll want to look at a draft of the image to make sure the scanner is seeing what you want it to. Do this by clicking on the Preview button. Once you have an image to work with, you can make some basic decisions and tweak the controls to improve the scan quality.



The Resolution Question An important decision you need to make at this point is what *resolution* your scan will be. Resolution, measured in dots per inch (dpi), determines the scanned image's level of detail. The higher the resolution, the more detail you'll capture. Your scanner's optical resolution determines the highest dpi you can achieve when you scan—for most of the scanners we looked at, it was 600 dpi.

Just because you *can* scan at 600 dpi doesn't mean you should. More detail, surprisingly enough, isn't always a good thing. Images with higher resolution also have bigger file sizes, which means they take up more room on your hard disk, print more slowly, and can easily choke a Web surfer's modem.

If you're scanning a photo to use in a Web page or to send through e-mail, a resolution of 72 dpi will suffice. This is an optimal resolution for an image viewed on a monitor. If you intend to print the file, however, a higher resolution is required to keep your photo from looking fuzzy. A good rule of thumb is to scan at 300 dpi if you're not going to change the picture's size and at 600 dpi if you plan to enlarge it. One warning: you can't really "add" resolution to an image after it's been scanned without making your image look bad. If you need more resolution, the best thing to do is to rescan the image.

Colorful Decision Another important prescan task is telling the software the type of image you'll be capturing. Choose between two types: line art or color. For most scans, such as photographs, you'll select color. If you're scanning text, such as a page from a book of poems, to be edited within an optical character recognition (OCR) application and included in a holiday card, choose line art. In line-art mode, scanners capture only black-and-white information.

Prescan Tweaking Scanner plug-ins offer other controls used for improving a scanned image, including brightness, contrast, and color balance. While you're getting used to your scanner, we suggest that you leave these at the default levels. PhotoDeluxe includes an Instant Fix button that automatically corrects many problems after the scan (see "Part 2: Fixing Up Your Images" for details).

When your preview looks just how you want it to, it's time to scan. This part is easy: just click on the Scan button. Remember to save your image when you're done. PhotoDeluxe saves images in Adobe's Photoshop file format by default. This works well if you intend to print the scanned image. If you will be e-mailing the image or putting it on the Web, however, save it as a JPEG or GIF file instead. These common formats can be read by all Web browsers and most e-mail programs. JPEG is your best choice for photographs, and GIF is best for artwork with areas of solid color.

Once you've saved your image, PhotoDeluxe automatically adds it to the Photo Gallery, located at the bottom of your screen. You've successfully gotten your pictures into your Mac. Now it's time to make them perfect.

Buying the Right Scanner

Macworld LAB TEST

So you've decided you want an inexpensive scanner that will treat your photos right. Now the question is, Which scanner is the one for you? To help you choose, we tested eight scanners priced between $100 and $200.

To evaluate image quality, Macworld Lab scanned a test photo, using default settings in either Adobe PhotoDeluxe or MicroFrontier Color It. We printed samples from each scanner on an Epson Stylus Color 1200 ink-jet printer. A panel of experts did a side-by-side comparison of all the printouts, checking them against the original for color fidelity and noting any blemishes, such as digital artifacts. We also scanned text in line-art, or black-and-white, mode and asked the panel to evaluate these scans for sharpness.

A Question of Quality Although all these entry-level scanners produced acceptable images, none were perfect. All but one, the $140 Artec 1236USB-iMac, exhibited various amounts of color banding, or *posterization*, when scanning color images. But we felt that some image flaws could be forgiven in light of the machines' affordable prices.

Finding a Balance Our jury selected the $130 Microtek ScanMaker X6 as the best all-around choice. It produced well-balanced color that was faithful to the original. This, combined with its crisp reproduction of text, set it apart as our Editors' Choice.

None of the other scanners offered this overall balance of quality. Most of them scanned color images much better than they did black-and-white ones. The jury favored the more expensive, $200 Epson Perfection 636U for the accuracy of its flesh tones and the vibrancy of its reds. However, the scanner did not do very well when reproducing black-and-white content. Bold text was slightly blurry.

The two scanners from Umax—the $129 Astra 2000U and the $169 Astra 2100U—produced acceptable results in the color tests but also gave us blurred text in our sharpness test. The Artec 1236USB-iMac lacked banding, and it reproduced the colors in our test image accurately; however, our jury felt that the image was excessively dark. The Artec scanner also fared poorly in the sharpness test.

The $109 Microtek SlimScan C6 washed out the test image's whites and failed to pick up details in the shadow areas. Its scans tended to be somewhat bright but didn't lose detail and maintained a good color balance.

The only scanner that did well in the sharpness test, other than our Editors' Choice, was the $100 Agfa SnapScan 1212U. But like its sibling, the $130 Agfa SnapScan Touch, it displayed the strong blue cast that made both these scanners unacceptable.

Macworld's Buying Advice If you're looking for a scanner that captures excellent color and offers sharp text to boot, Microtek's ScanMaker X6 is a great deal. It's also the only scanner you can buy for less than $200 that is available with either a USB *or* a SCSI connection, which is good news if you've got an older (non-USB) Mac.—JEFFY K. MILSTEAD, WITH TESTING BY KEVIN MITCHELL

Company	Product	Mouse Rating	List Price	Contact	Interface	Bundled Software
Agfa	SnapScan 1212U	♦♦½	$100	800/879-2432 www.agfa.com	USB	MicroFrontier Color It, Caere OmniPage LE
	SnapScan Touch	♦♦½	$130	800/879-2432 www.agfa.com	USB	MicroFrontier Color It, Caere OmniPage LE
Artec	1236USB-iMac	♦♦♦½	$140	510/739-0800 www.artecusa.com	USB	Adobe PhotoDeluxe 2, Xerox TextBridge Classic 3.0
Epson	Perfection 636U	♦♦♦½	$200	800/463-7766 www.epson.com	USB	Adobe PhotoDeluxe 2, NewSoft Presto Pagemanager 2.31, Brøderbund The Print Shop Presswriter 1.0
Microtek	SlimScan C6	♦♦♦	$109	800/654-4160 www.microtek.com	USB	Adobe PhotoDeluxe 2, Caere OmniPage LE, Microtek Scansuite
	EDITORS' CHOICE ScanMaker X6	♦♦♦♦	$130	800/654-4160 www.microtek.com	USB or SCSI	Adobe PhotoDeluxe 2, Caere OmniPage LE, Microtek Scansuite
Umax	Astra 2000U	♦♦♦½	$129	800/562-0311 www.umax.com	USB	Adobe PhotoDeluxe 2, NewSoft Presto PageManager 2.31, Caere OmniPage LE, NewSoft Presto PhotoAlbum LE 1.54
	Astra 2100U	♦♦♦½	$169	800/562-0311 www.umax.com	USB	Adobe PhotoDeluxe 2, NewSoft Presto PageManager 2.31, Caere OmniPage LE, NewSoft Presto PhotoAlbum LE 1.54



♦♦♦♦ **Microtek ScanMaker X6** This low-cost scanner will give you great color and crisp text reproduction and is available in either USB or SCSI versions. **Company:** Microtek (800/654-4160, www.microtek.com). **List price:** $130.



Part 2:
FIXING UP YOUR IMAGES

No matter how good a photographer you are or how fancy your scanner or camera, just about every picture you take will need some enhancements and corrections to be able to live up to its full potential.

Most of the following tips assume that you have Adobe PhotoDeluxe. (It comes bundled with almost all the scanners we looked at.) However, if PhotoDeluxe seems too limited to you and Photoshop's professional price tag makes you choke on your eggnog, consider the $99 Adobe Photoshop LE. It offers all the features of Photoshop 5.0, minus only those you'd need to print the image professionally.

Compose Yourself

Hopefully, you composed and framed your image well when you shot the picture or scanned the object. However, even the best photographers may need to crop an image. Even if you think your image looks OK as is, try cropping it in different ways, using PhotoDeluxe's Trim feature. You might be surprised at the results (see the photograph "Focus In").

When trimming, consider the following:

♦ Don't think of trimming as cutting something out; think of it as focusing on a particular part of the image. This will make it easier to decide what can go. For example, if you crop all that extra headroom out of your portraits of grandma, you'll bring more focus to granny's winning grin.

♦ Keep the image balanced. If you trim something off the left side, the picture might look lopsided. Try to rebalance the photo by adjusting the right-hand crop or by cropping the top or bottom of the image.

♦ Trim your image before you make any other adjustments. This will speed the processing of your adjustments and help you focus on the colors and tones that matter in your image. There's no need to spend a lot of time correcting part of an image if you're going to end up cropping it out later.

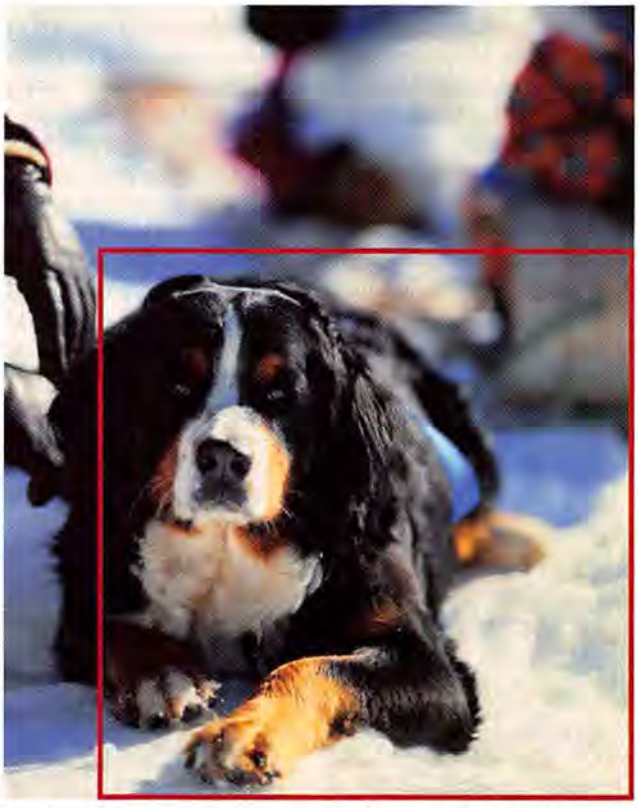
Bright Idea

Once you're satisfied with your composition, it's time to improve the quality of the image. Before you start retouching particular problems, consider the tone and quality of the entire image. Does it look muddy, or even slightly dull or hazy? Though PhotoDeluxe's Instant Fix does a good job of improving your image, you can probably do better with a quick trip to PhotoDeluxe's Brightness/Contrast tool.

PhotoDeluxe's Brightness and Contrast sliders work just like the brightness and contrast controls on your old black-and-white television. Before you move the sliders, look at your image and find its brightest spot and its darkest spot. The brightest spot will most likely be a highlight or a reflection—the rim of someone's glasses, say, or a somewhat shiny nose. The darkest point in your image will probably be an area of shadow, although it might also be a contour of some kind, such as a wrinkle in someone's face. (See the sidebar "Beat the Muddy Image Blues.")

Now start moving the Brightness slider, and see what happens. Does the image look better brightened? Or is it improved by a little darkening? As you move the slider, keep an eye on the brightest and darkest spots. If you brighten the image too much, you might overexpose, or "blow out," the highlights. If you look at the highlight areas in your original image, you'll see that they don't contain much detail, just white space. When brightening your image, you want to be sure you don't increase the size of the highlight too much, as you'll be simultaneously increasing the area without detail. Similarly, you don't want to darken shadowy areas so much that they lose detail.

Once you've adjusted the brightness to your liking, try moving the Contrast slider. Again, keep an eye on your bright and dark points. Your goal is to adjust the tones between these two points. You don't want to decrease contrast so much that your shadows are no longer black. Ensuring that your shadows are always dark and your highlights always white will improve the chances that your middle tones are correct. In trying to find the right balance of contrast and brightness, also keep an eye on the level of detail in your image. As you improve the brightness and contrast, your image should look clearer. High-contrast details should be sharper, and any haziness in the image should disappear. If you try a touch-up and immediately decide it was a mistake, just press ⌘-Z to undo it.



Focus In When you crop your images, try to focus in on the main subject. Here the hand and snowy background just distracted from our family friend.

Unless your monitor is way out of whack, your printer will probably print the image a bit darker than it appears on your screen. Make a test print to be sure. Most likely, you'll need to adjust your image so that it seems a little too bright on your screen. Making it a little more contrasty can't hurt, but don't go too far, or your image will look too sharp. Make sure that there are smooth transitions between light and dark areas, not sudden changes from a middle tone to black or white.

Casting Call

If your image has a curious color cast to it—that is, if it looks like it was shot through a colored filter of some kind—then you'll need to use PhotoDeluxe's Variations feature to adjust your picture's color. Click on the Touch-Up tab, then the Fix Color button, and then the Variations tab, and PhotoDeluxe will present you with a variety of thumbnail copies of your image, each with a slight color variation. Click on one to apply that variation, and PhotoDeluxe will present you with a new set of thumbnails. If your image has a blue cast, for example, you'll want to add some yellow or red, and so on.

Cosmetic Surgery

PhotoDeluxe's Retouch Face facility provides a Clone tool that's great for cleaning up any imperfections that might have crept into an image. With the Clone tool, you can paint one area with color picked up from another area, ensuring that you're always using colors that blend and change correctly over your image.

The Clone tool is particularly useful for correcting problems in portraits. Take a good, close look at your image. Because you're used to seeing your subject, you may not notice at first that his glasses are casting ugly shadows onto his cheekbones or that he has some darkness under his eyes. You can take these out with the Clone tool, but be careful. Because it's so much fun to use, it's easy to get carried away. Just because you can get rid of the mole on someone's face doesn't mean you should. She may be quite attached to it.

If you've been shooting with a flash, be sure to check for red-eye, that weird, demonic look that is caused by your camera's flash bouncing off the back of your subject's retinas. PhotoDeluxe's Red Eye tool makes it simple to correct this problem. Click on the Touch Up tab and then the Red Eye button. Then just follow the two-step directions on screen.



Print That

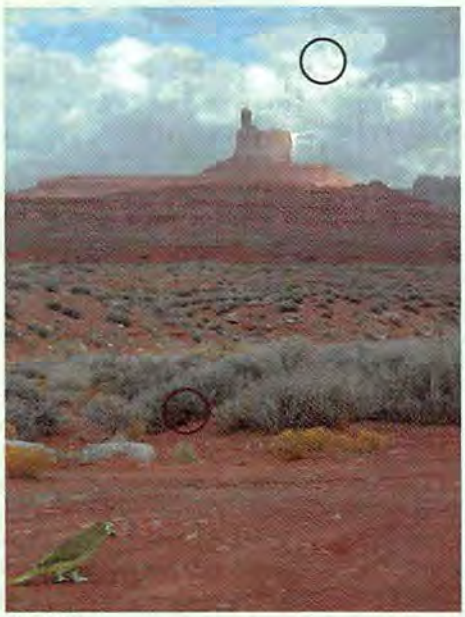
Finally, when you do your touch-ups, consider what you're printing on. Your printer's manufacturer probably sells several different papers tailored specifically to your printer. Switching to a high-quality glossy or coated paper can turn a mediocre print into a photographic-quality print. Be sure to select the appropriate paper settings in your Print dialog box (see "Unlock Your Printer's Potential," July 1999).

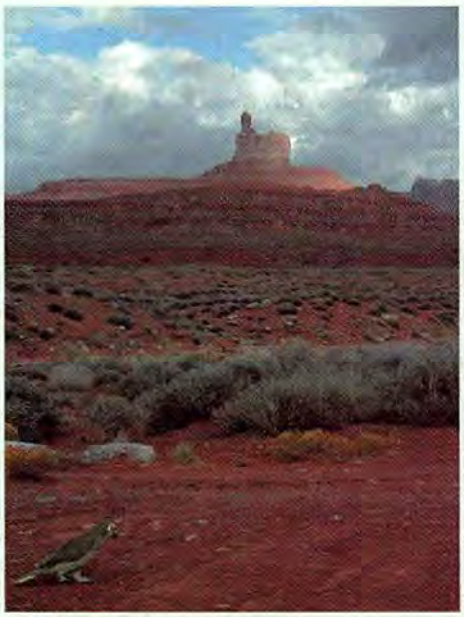
Different papers reproduce color in different ways, so you may have to make extra color adjustments for particular papers. For example, Epson's Photo Gloss paper tends to have a slight green cast. Once you've got the image adjusted to your liking, make a copy of it and use the Variations control to remove some green. Save this as a special, glossy version of your document.

Don't hesitate to experiment with paper either. Watercolor papers, handmade papers, and even old grocery bags can produce interesting results when run through an inkjet printer. (Before you stick something very thick in your printer, you should see what its limits are by checking the manual.) They may not produce photo-quality output, but a porous, ink-absorbing watercolor paper can give you a more painterly look that might be just the thing for your image. For ideas about holiday projects that will show off your artistic endeavors, read on.

Beat the Muddy Image Blues

A quick trip to PhotoDeluxe's Brightness and Contrast controls can do wonders for an image that appears dull and muddy. First find the brightest and darkest spots—indicated here by a green and a red circle. Keep your eyes on these points as you adjust the sliders. Take care not to "blow out" the highlights (in other words, to lighten them so much that they become blank white spots) or to darken shadows so much that they lose all detail.


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Part 3:
CREATING YOUR HOLIDAY PROJECT



You've scanned. You've tweaked. Now the real fun begins. There's no end to the number of ways you can combine your creativity and a Mac to make cool stuff.

When we polled *Macworld* staff members for ideas, they suggested projects from the simple (greeting cards adorned with scans of Christmas lights) to the complex (a Y2K-countdown calendar with little doors that open to reveal an apocalyptic image for each day in December 1999). We focus on only a few areas here—greeting cards, T-shirts, and digital photo albums—but we hope our tips will inspire you to test your imagination.

Our software-specific advice deals mostly with programs many people already have, such as Adobe PhotoDeluxe and Microsoft Word (800/426-9400, www.microsoft.com/mac). However, there are a couple of other packages out there you might find interesting. Nova Development (818/591-9600, www.novadevelopment.com) recently released the $49.95 Print Explosion (see the companion feature "Perfect Presents"). It can help you make greeting cards, calendars, banners, party sets (complete with invitations and matching pointy hats), and more. It also comes with loads of fonts and clip art.

Greeting Cards

You don't have to have QuarkXPress and Adobe Photoshop to make great greeting cards (although it wouldn't hurt). You can compose your cards by using most word-processing and some image-editing programs.

Adobe PhotoDeluxe, for example, works well if you want to make a card that relies heavily on pictures. You can import your own scanned graphics or choose from an impressive selection of sample photos, including plants, flowers, people, places, and objects.

For those short on time or in need of a little inspiration, PhotoDeluxe offers card templates for most major holidays and occasions. The selection is very limited (for example, there are two Christmas and Hanukkah templates and one for New Year). Unfortunately, at press time, all additional templates on the Adobe Web site were for Windows users only.

One tip: if you get an error message when you try to access PhotoDeluxe's templates or clip art, look at the Extensions Manager in your Control Panels folder to make sure the Apple Guide and AppleGuideLib extensions are turned on. Also, be aware that PhotoDeluxe does not install the images and templates on your computer—you'll have to have the PhotoDeluxe CD in the drive to work with any of these elements.

Once you've chosen a template, personalize it by changing the text and adding images (see the photograph "Handmade for the Holidays"). One of the advantages of using templates is that they're set up to print correctly onto card stock. You can choose a vertical or horizontal orientation and a single or double fold. PhotoDeluxe does not offer a blank template and does not let you delete template elements, so if you need more creative freedom, you must either draw a white box over a template's graphics or use another program, such as Microsoft Word.

Microsoft's new, $129 ($99 after rebate) Microsoft Word 98 Special Edition for the iMac and iBook is another decent tool for creating your greeting cards. You can't edit your graphics in it as you can in PhotoDeluxe. It does, however, come with many more templates, created by paperStudio (www.paperstudio.com). The program lacks a blank template, but you can fudge it by deleting all the graphics in a premade template. It also comes with ink-jet paper samples, including heart- and circle-shaped cards.

If you made your images in PhotoDeluxe and want to use them in Word 98 or another program, be aware that PhotoDeluxe, by default, saves all images in its own file format, which most other programs don't recognize. You'll need to save your images in another file format, such as JPEG or PICT. Do this by going to File: Send To: File Format.





HANDMADE FOR THE HOLIDAYS
General Description: Greeting cards
Creator: Kathryn Lunsford
Paper/Medium: Kodak's Inkjet Photo Greeting Card Paper and Hewlett-Packard's HP Glossy Greeting Card Paper
Software: Adobe PhotoDeluxe, stock photography from PhotoDisc's The Millennium
Reproduction Process: Printed on an Epson Stylus Photo 1200
Comments: Kathryn printed one card (left) by using an unaltered PhotoDeluxe template. Then she experimented with spicing up the template (right). If you want more creative freedom when you make your cards, either draw a blank box over the PhotoDeluxe template or use another program, such as Nova Development's Print Explosion.

Beyond Templates If you don't have a program that sets up the pages of your card for you, you can do it yourself. To design a 5½-by-8½-inch card with a single fold, create two letter-size pages—one for the card's outside and one for the inside—in landscape format. The front panel of the outside will be on the right, and the back panel will be on the left.

Try to avoid running text or graphics across the middle of the page, where the fold will be. If you're printing on anything other than white stock, keep in mind that the paper's color will affect how images appear. If you want to print "full bleed" (all the way to the paper's edge), design the card so that inessential portions of art run slightly over the margins of your paper. You'll also need some special paper (see below).

When you're finished creating the design, it's a good idea to print a dummy copy on plain paper to check folds and align-

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ment. This will also help you avoid a common mistake—printing the second side of your card upside down.

Paper Possibilities You can print your holiday greetings on almost any kind of paper, but for those who want to send something that really looks store-bought (in the good sense) and don't want to struggle to make their cards fold neatly, several manufacturers offer card stock designed for use with ink-jet printers.

These papers come in many sizes and varieties. We printed our test cards on card stock from Kodak (800/508-1531, www.kodak.com/go/inkjet), Hammermill (800/242-2148, www.hammermillpaper.com), Hewlett-Packard (208/323-2551, www.hp.com/go/paper), and Avery (800/462-8379, www.avery.com). Each of the packages cost between $10 and $20 at our local CompUSA (photo-quality cards hit the higher end of the scale). Your cost may vary.



Most ink-jet greeting-card papers are coated on both sides, for two-sided printing. This, and the paper's heavier weight, means that images won't bleed through (or show a ghost image on the other side), as they will on regular ink-jet paper. Some papers also feature a glossy coating on one side that makes photos and brightly colored graphics print at a much higher quality. We recommend this type of paper, especially if you want to print a photo on the card's outside and simpler graphics and text on the inside. (To avoid smearing your photos, make sure to wait at least five minutes before printing on the second side of your cards—this gives the ink time to dry.)

Many greeting-card stocks are also prefolded, and some include microperforated margins for full-bleed printing. All the cards we looked at come with matching envelopes.

Thrifty Ways Depending on how many friends and relatives you have, printing your cards at home might become costly. To save on ink costs—especially when printing in high volumes—avoid designs that use a lot of one color, such as the ubiquitous green, red, or blue. Most ink-jet printers don't let you replace single colors when you run out (except black)—instead, you have to replace the whole three- or five-color cartridge.

As a lower-cost alternative to folded greeting cards, consider sending your holiday wishes on ink-jet postcards. In addition to saving postage, you'll save ink—and printing time.

If you want to print even higher volumes of cards—and don't care whether they're personalized for each recipient—think about taking your digital files to a print shop that has a digital color copier. Most of these copiers print great-looking images, and many can handle heavy card stock that would choke an ink-jet printer.



T-Shirts and Other Wearable Wares

Why should rock stars and pro athletes get all the glory? Thanks to the modern miracle of ink-jet technology, you too can have your photo—or any image—printed on a T-shirt.

Epson, Hewlett-Packard, and other manufacturers produce letter-size, iron-on fabric transfers that work in the companies' respective recent-model ink-jet printers. Expect to pay about $15 for a pack of ten. Using a household iron or, better yet, a heat press (Uncle Larry the dry cleaner may soon be your best friend), you can transfer images to T-shirts, hats, schoolbags, quilt squares, or any other cotton items you can lay flat on a hard surface. Maximum size for a single transfer is about 8 by 10 inches. Transfers are about three times as thick as standard ink-jet paper and have a single printable side with a thin cloth backing. Printing on transfers is much like printing on any other medium, with a few important differences.

TWELVE MONTHS OF GIVING

General Description: Family calendar

Creators: Nancy Peterson and Mark Brest van Kempen

Paper/Medium: 11-by-17-inch card stock

Software: Adobe Photoshop, Now Up-to-Date

Reproduction Process: Printed on a Tektronix Phaser 480X and then reproduced on a color photocopier at Kinko's

Comments: Nancy and Mark wanted to blend the photos of their family members into famous paintings. This demanded *a lot* of work in Photoshop, but they clearly got great results. You can create a version that simply includes your favorite family photos by using the calendar feature in a program such as Microsoft Word 98 Special Edition for iMac and iBook or Nova Development's Print Explosion.

Quality Matters Because you're ultimately printing on a grainy, cloth surface, images will lose much of their detail. You're generally limited to 360-dpi output, even if your printer is capable of higher resolution. You can print decent-looking photos, but they'll have a slightly posterized appearance. On the other hand, since most T-shirts are viewed at a distance, much of the detail would be lost anyway.

Keep in mind that some images will reproduce better than others. Logos and illustrations with solid colors print well, as do high-contrast photos with dominant subjects. But if you plan to use type, make it big. Anything less than 72 points will be unreadable at a distance.

In some cases, the transfers' limited quality can be a blessing. Photos that look bad in print might look just fine on a T-shirt. We pasted images of three band members from the group Sci-Fi into an alien-planet scene created in MetaCreations Bryce 4 (800/472-9025, www.metacreations.com). On paper, the images look obviously pasted in. However, on the T-shirt, the guys look like they're having a grand time on Nebulon IV.

Be prepared to experiment with your image. Our T-shirts came out a little dark and too green. That was certainly appropriate, considering the subject matter, but if you don't fancy wearing a verdant Martian on your chest, you may need to spend more time adjusting colors than you would when print-

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ing on paper. You can do this in your graphics program (see "Part 2: Fixing Up Your Images") or, in some cases, with the printer software.

The Big Flip The image will be transferred to another medium, so you'll need to reverse it (flip the horizon), using the printer software or your graphics software. Otherwise, text will print backward.

The Zen of Ironing Now for the tough part of the job: transferring the image. Unfortunately, this is a little more complicated than ironing your shirts. You need a hard surface—an ironing board won't do, but a heavy wooden cutting board, or a piece of marble, that you cover with a pillowcase will. Place the T-shirt (or other cloth item) and transfer on the surface and apply a hot iron in a procedure that resembles a tai chi exercise: 30 seconds one way, 30 seconds the other way, and so on. Be careful, though—it's easy to burn the fabric during this process. After a few minutes, you peel off the backing and your work is done.

Digital Photo Albums

Deep in the dark recesses of a closet in one of your family members' houses, there is undoubtedly a box of fragile old photos. You may not have even seen all of them before—the one of your great-grandparents' wedding day, the snapshot of your mom in diapers.

One way to preserve these windows to the past and share them with the whole family is to make a digital photo album that you can put on the Web or a cross-platform CD-ROM. Making a digital photo album is not as hard as you may think (especially with our help), although if you want to put it on a CD-ROM, you'll need a CD-ROM burner.



What's the trick? By using HTML (the language of the Web) to present your photos, you'll avoid a lot of problems. Anyone with a Mac or a PC and a Web browser will be able to see the photos, so you won't have to worry about what kinds of computers your relatives have. *Macworld*'s executive editor, Jason Snell, has also created an AppleScript—Slide-Show Page Creator—that will automate a lot of the process for you (go to Macworld Online at www.macworld.com/1999/12/features/crafts to download it). To check out Jason's finished project, see the photograph "Memories That Won't Fade."

Screen-Ready Images After you scan in your photos and touch them up, make sure they're small enough to fit on a computer screen—a maximum image size of roughly 600 by 450 pixels ensures that they'll fit on small screens. Save them in the JPEG file format (if you click on the Send button in Adobe PhotoDeluxe and choose To Webpage, the program will lead you through this process).

If the eventual destination of your photos is a CD-ROM, save the JPEG images at the highest-possible image-quality setting. Your files will be large, but that won't matter, since they'll be on the CD. If you're making a second version of your photo album for the Web, save a version of each image in another folder and choose a lower JPEG image-quality setting so these copies will be small enough to transfer quickly across the Web. Begin each file name with a number—for example, 01-first shot.jpg and 19-closeup.jpg—so that when viewed alphabetically, the files are in the correct order.



Quick Work After getting all your JPEG files into one folder, use Jason's Slide-Show Page Creator. It will generate an HTML page for each image in your folder, with hyperlinks to the images that precede and follow any given image in the slide show.

All you'll need to do is create a page that introduces your slide show and hyperlink that page to the first image in the series of photos. In case you need a little help doing this, we've created a simple template (also available from Macworld Online) that you can customize in Microsoft Word 98, the $49 Adobe PageMill, or any other software that can edit Web pages.

If some of the people who will receive your CD-ROM use PCs, you may want to double-check that your files have three-letter file extensions—*.htm* instead of *.html* and *.jpg* instead of *.jpeg*—to make them more compatible with Windows.

CD-ROM Creation Your site is now ready to be posted on the Web. To make a CD-ROM, however, you'll need a CD-R or CD-RW drive (for a comparative review, see "Burn, Baby, Burn," September 1998) to put your information onto a disc.

Follow your drive's directions. As you're picking your settings, choose to burn the CD in ISO 9660 format, a CD-ROM format that works on both Macs and PCs.

Finishing Touches To finish off your CD-ROM photo album, create a special label and a jewel-case insert for it. Many companies, such as Neato (800/984-9800, www.neato.com), make labels you can run through an inkjet printer. We used Neato's $30 CD Labeler Kit.

MEMORIES THAT WON'T FADE

General Description: CD-ROM or Web-based photo album

Creator: Jason Snell

Medium: CD-R with Neato CD labels

Software: Adobe Photoshop, AppleScript, Adaptec Toast, Neato's MediaFace design software

Comments: Go to Macworld Online to get Jason's Slide-Show Page Creator script; it automatically turns a folder of photos into a cross-platform CD-ROM photo album. The project is based in HTML, so the CD-ROM's contents can be easily adapted for the Web, for those in your family not lucky enough to get their own CD. Jason scanned the cover of the original photo album to make his jewel-case insert. He decorated the CD itself with a photo of the album's original owners, his wife's grandparents.

The end result is a digital photo album that won't yellow with age and will protect particular family memories for a long time to come. **m**

Associate Editor MICHAEL GOWAN and Senior Lab Analyst JEFFY K. MILSTEAD pored over a passel of scanners to bring us the tips in "Part 1." Freelance writer and illustrator BEN LONG shared his considerable image wisdom in "Part 2." Senior Editor STEPHEN BEALE and Executive Editor JASON SNELL created "Part 3," with help from Assistant Editor KATHRYN LUNSFORD.



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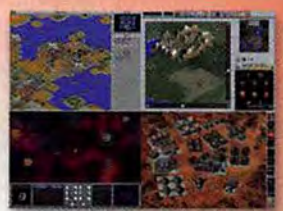




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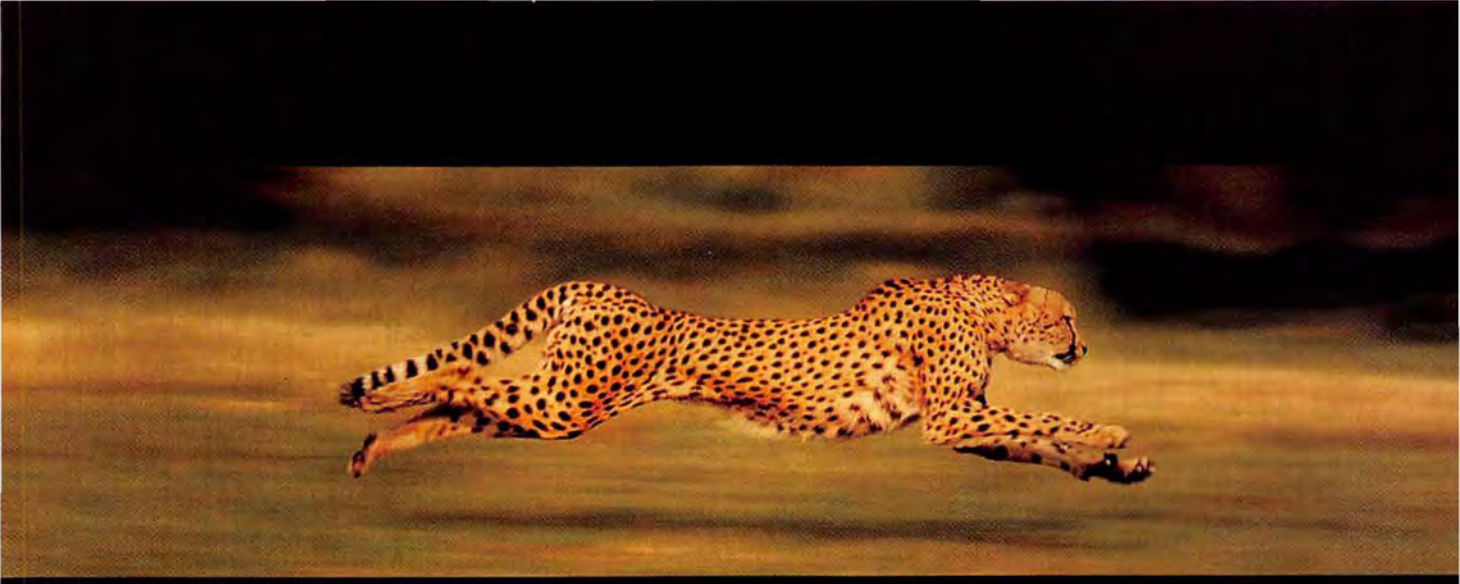
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Secrets

Advanced Extensions Management

CONFLICT CATCHER DOES MORE THAN ITS NAME SUGGESTS

by Ted Landau

With the hundreds of files that fill a typical System Folder, just keeping track of what's in there can be a daunting task. That's one good reason to use Casady & Greene's Conflict Catcher 8 ($79.95; 800/359-4920, www.casadyg.com). Conflict Catcher is similar to the Extensions Manager that ships with the Mac OS—in the same way a luxury liner resembles a rowboat. Both utilities generate a list of your extensions and control panels, and both allow you to enable or disable specific ones selectively, either individually or by creating customized sets. But while Extensions Manager starts to run out of gas at this point, Conflict Catcher 8 is just getting started.



Conflict Catcher's name identifies the program's most significant added feature: it automates and simplifies the process of "catching" an extension conflict (see "Catch Conflicts More Quickly"). But even if conflicts aren't giving you trouble at the moment, Conflict Catcher has a host of other helpful tricks up its sleeve.

Locate Files Quickly

Looking to disable an extension from the list in Conflict Catcher's main window? If you're like most users, you'll use your mouse to scroll through the seemingly endless list until you ferret out the file, and then click on its name (or its check box) to disable it. There's a faster way: just start typing the name of the desired file, and Conflict Catcher will take you right to it. Then type ⌘-return to toggle the enabled or disabled state of the extension.

Find the Most Informative View

You can get easy access to Conflict Catcher's most useful features through the Listed By column. The header of this column is a pop-up menu, and its various options sort the start-up file names in a dozen different ways, giving you clues about a variety of ills that can affect your Mac (see "Choose Your Criterion").

Say you suspect the order in which your extensions load at start-up is causing a problem. Choose Listed By Load Order. From this view, you can drag any file from its initial location to any other spot in the list. To do so, click on the file's name and hold down the mouse button while you drag. This is especially useful for resolving problems that occur when an extension conflicts with one that loads later in the sequence.

Maybe you suspect that a new extension is the cause of some new symptom. You can easily find out what files are new additions to your System Folder by selecting Listed By Date Installed.

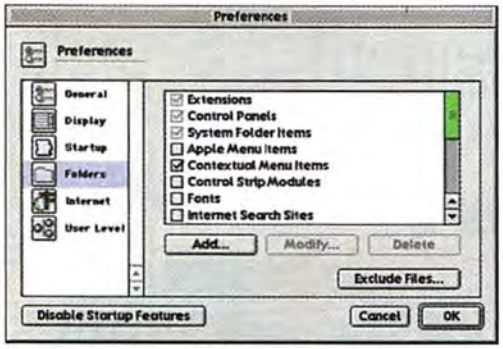
Need some extra free RAM? If you choose Listed By Memory Use, the

continues

RICCARDO STAMPATORI



Choose Your Criterion Select from Conflict Catcher's Listed By pop-up menu to sort start-up files in a variety of ways.



Add Folders Use the Folders panel in Preferences to add the contents of a folder to Conflict Catcher's main window.

biggest memory guzzlers appear at the top of the file list. If a particular offender isn't essential, you can disable the file. Memory Use also lets you know if a start-up file is using more memory than the program has requested for it—the number will appear in boldface. There's no need to panic when this happens: I've found that it's usually safe to ignore this warning. But if you start having unusual symptoms that could be linked to that extension, try disabling it.

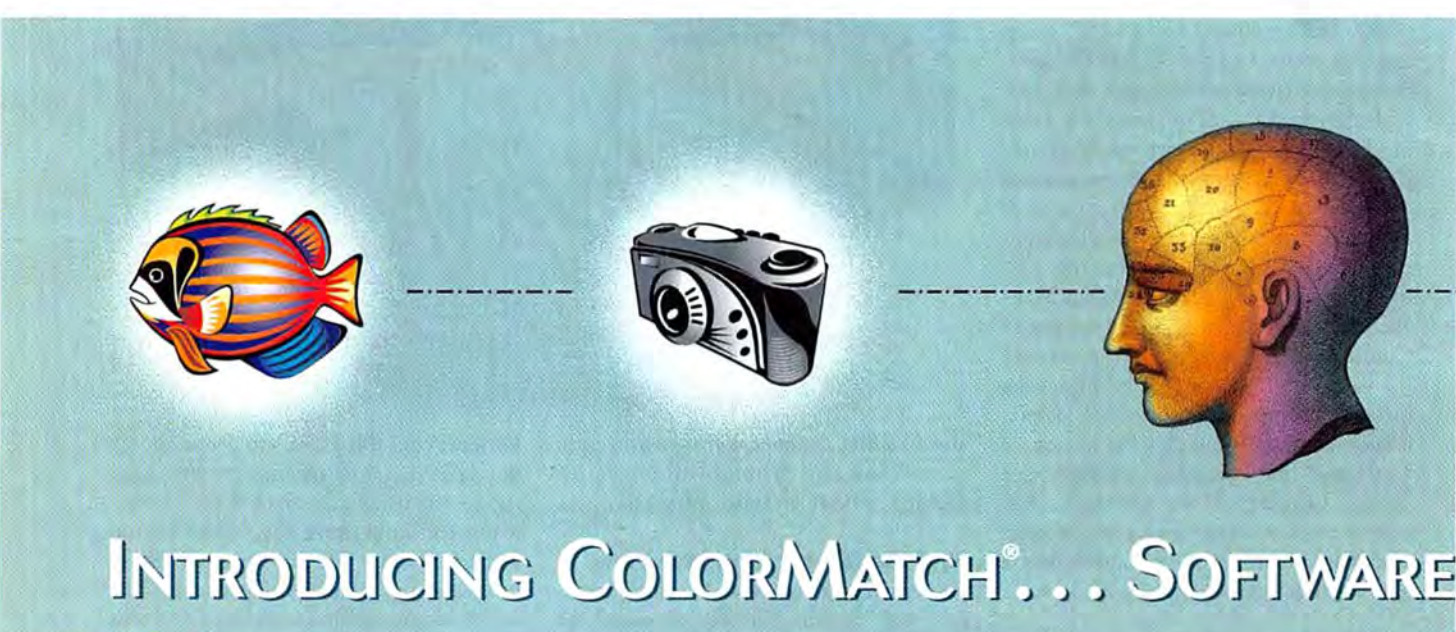
Seize Control at Start-Up

Suppose you're halfway through loading extensions when you see the icon for a file you think you've disabled. No need to wait until start-up is over, disable the file, and then restart—simply press ⌘-R for instant restart. Then get Conflict Catcher to open before the other extensions start to load. The standard way to do this is to press and hold down the spacebar until Conflict Catcher appears. A shortcut, however, is to use the caps lock key to open Conflict Catcher. To enable this trick, go to Conflict Catcher's Preferences and select Caps Lock Opens At Startup from the General panel. Once you've opened Conflict Catcher, disable the extension and let start-up continue.

Conflict Catcher also lets you switch start-up disks at start-up. To enable this feature, select Show Startup Menu from Conflict Catcher's General Preferences window. Then, at any start-up, get Conflict Catcher to open (by pressing caps lock) and select the desired volume from the Startup menu. When you click to continue, the Mac restarts and switches to the start-up disk you selected.

Expand Conflict Catcher's Powers

Conflict Catcher's omniscience extends beyond your Extensions and Control Panels folders. It can list the contents of virtually any folder on your hard disk, including Fonts, Contextual Menu Items, and Photoshop Plug-ins. Just go to Conflict Catcher's Preferences, select the Folders panel, and



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click to enable the folders you want displayed. For example, with the Fonts folder listed, you can use Conflict Catcher's Edit Sets command to create start-up sets with different font collections enabled. This substitutes for the similar feature in utilities such as Adobe Type Manager and Suitcase.

If you don't find the folder you want in Conflict Catcher's Folders list, add it yourself (see "Add Folders"). I used this method to add the QuickTime 4.0 Extensions folder to Conflict Catcher's listings.

Find the Hidden Feature

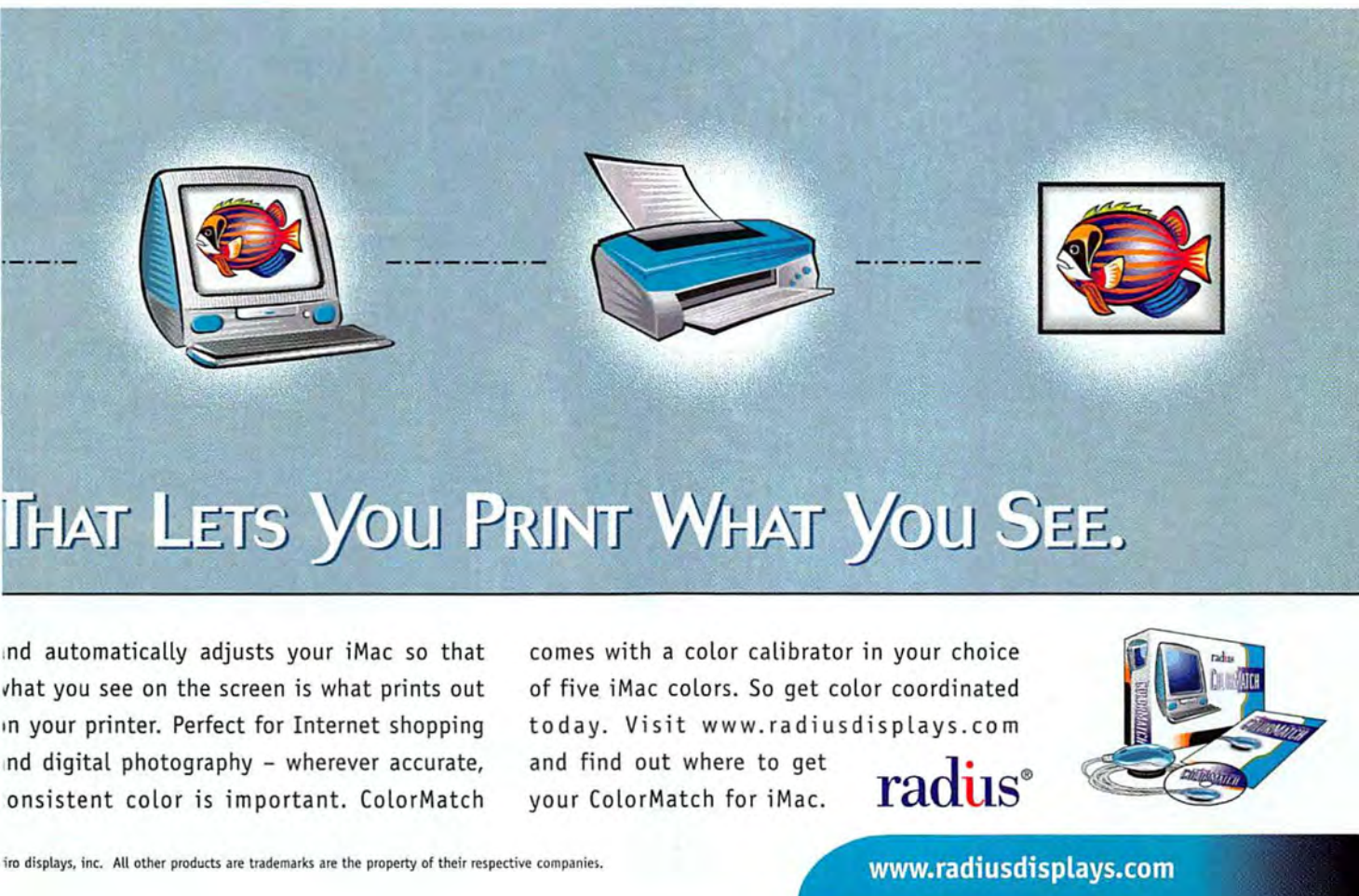
Ready for a break? Select About Conflict Catcher from the Apple menu and type **play**. You'll get a mini-Asteroids game (the arrow keys change your direction, the option key gives you thrust, and the control key fires your weapon). When you're done battling in space, you'll be ready to return to battling your Mac's extensions, with Conflict Catcher as your sidekick. **m**

Contributing Editor TED LANDAU awaits your latest reports at his MacFixIt Web site (www.macfixit.com).

Catch Conflicts More Quickly

EVENTUALLY IT HAPPENS to every Macintosh user. Your Mac crashes (or some application's feature fails to work) because of an errant extension. You'd happily consider disabling the file if you only knew which of the dozens of suspects was to blame. This is where Conflict Catcher's Conflict Test feature comes to the rescue. The process by which Conflict Catcher finds the culprit may be almost automatic, but it can still be time-consuming, requiring many restarts along the way. Here are some tips for speeding things up.

- If you have a good idea which file might be causing the problem, use the Intuition feature to let Conflict Catcher in on your suspicions. If your guess is correct, your search will take up much less time.
- If you make a mistake somewhere along the way (such as telling Conflict Catcher that the problem was gone on a particular restart when it really wasn't), you don't need to start all over. From the Status log in the main window, click on the step you want to revert to, and Conflict Catcher will take you back.
- After you've determined whether a problem still exists, select Conflict Catcher and tell it your finding before selecting Restart again. This eliminates the need for Conflict Catcher to halt the next start-up to ask what you found.



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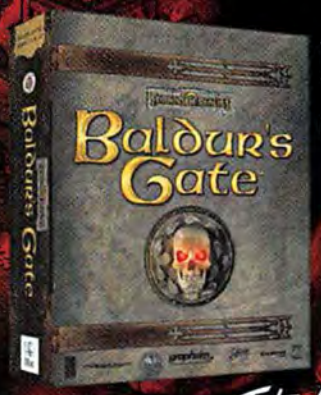
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Tips, Tricks, and Shortcuts

by Lon Poole

Think of the multimedia collages you could create by adding your own music and dialogue to QuickTime movies (think Woody Allen's movie *What's Up, Tiger Lily?*). Andrew Bowman of Kingstown, Saint Vincent and the Grenadines, discovered that you can do this with QuickTime 4 Pro's QuickTime Player application. First, import an audio file into QuickTime Player—use the Import command or drag the file to the QuickTime Player icon—to make a sound-only movie. Or record your own audio files using the SimpleSound application. Jason Baker of Lyndhurst, Ohio, discovered that you can also import a track file from an audio CD; drag the track's icon to the QuickTime Player icon to import the whole track, or use QuickTime Player's Import command to select part of a track and set the audio quality. Be sure not to break any copyright laws.

Select all or part of the imported audio by dragging the triangular markers along the bottom of QuickTime Player's play bar, and use the Copy command. Bring up the movie to which you want to add your copied audio, select the portion where you want to insert the sound, and press ⌘-shift-option-V (the Add Scaled command).

You can turn individual tracks on and off with the Enable Tracks command and adjust volume with QuickTime Player's Get Info command: in the movie's Info window, choose the track from the left pop-up menu, choose Volume from the right pop-up menu, and adjust the sound levels.

Move the Control Strip

Q. I enjoy the convenience of the Control Strip very much, especially the modules that let me change the volume and monitor resolution. But occasionally the Control Strip moves up the left side of the screen, usually after I play a game that changes the screen resolution. Is there any way to bring it back down without reinstalling the system software?

ALEX FLAX
Long Island, New York

A. Press the option key and drag the tab at the end of the Control Strip to move it anywhere you like on either side of the screen. You can also



rearrange modules by option-dragging them left or right. For detailed information on the Control Strip, use balloon help and look up Control Strip in the on-screen Mac OS Help (while the Finder is active, choose Mac OS Help or Help from the Help menu).

SCSI Performance

Q. I have a beige Power Mac G3 with an internal Zip drive and an ATA hard drive. If I install an Ultra2 Wide SCSI card and an Ultra2 Wide SCSI internal hard drive, will the new drive be limited to the speed of the existing internal ATA hard drive?

JAY MOON
Renton, Washington

A. SCSI equipment operates independently of ATA equipment, so the speed of one does not affect the speed of the other. The hard-drive mechanism that you install has the most effect on performance. Your choice of SCSI adapter card might also affect performance, but Macworld Lab found that three different Ultra2 Wide cards achieved nearly identical speeds (see "Generation Gap," August 1999). Be aware that some Ultra2 Wide cards drop down to the speed of a slower type of SCSI—Narrow, Fast Narrow, Ultra Narrow, or Ultra Wide—if you connect a slower device to the card's SCSI chain. Adaptec (www.adaptec.com) claims that its $449 PowerDomain 2940U2W card has a feature that maintains Ultra2 Wide performance when slower devices are connected, or you can circumvent the problem by using an inexpensive second SCSI card for the slower devices.

Ribbon Cable Trouble

TIP If you're having trouble with a once reliable Mac after adding a new internal SCSI device and making sure every device has a SCSI ID number and the SCSI chain is properly terminated, the culprit might be the SCSI ribbon cable. These cables are thin, and consequently they're more fragile than exter-

continues

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PLUS! In this issue, the return of the hard card! A traditional perforated card that allows you to circle your product-info choices as you read Macworld on the train, on the plane or where-ever you are. Then drop the card in the mail and it's on the way!

Macworld

nal SCSI cables. In many cases, they're folded and crammed into tight places. You can buy a new ribbon cable for around $20 from electronics stores and some computer stores (CDW has a wide selection at www.cdw.com). Get a replacement that is the same length and that has the same number and type of connectors as the original. Connect one end of the cable to the computer's internal SCSI port and the other end to a SCSI device. Connectors in the middle of the cable do not have to be attached to anything.

KEITH BAHJAT
Gainesville, Florida

Preview PowerPoint Transitions

TIP To quickly preview a slide's transition in Microsoft PowerPoint, click the transition icon beneath the slide in Slide Sorter view.

TOMMY PICARD
Irvine, California

Simulate Calculator Memory

TIP Although the diminutive Calculator doesn't have a memory feature, you can simulate one. If you calculate a number (for example, 308/60 = 5.1333333333) and realize that you'll need to subtract it from or divide it into the result of a subsequent calculation, you can store the number by copying it to the Clipboard (⌘-C). Then perform your next calculation up to the point where you need the stored number (for example, 269.9/) and recall it by pasting (⌘-V). The calculator immediately computes the result (52.577922078).

ED HARGREAVES
Kennewick, Washington

Make Bookmarks Succinct

TIP Many Web sites you bookmark have names that are either obtrusively long or elusively nondescript. (Three months after you've bookmarked Index.htm, try remembering which Web site it represents.) To edit a bookmark's name in Netscape Communicator or Navigator 3.X or 4.X, display the Bookmarks window by pressing ⌘-B, select the bookmark name, and display the bookmark's info dialog box by pressing ⌘-I. There you can rename the bookmark, changing The Weather Channel - Santa Barbara, California to Weather, for example.

JON SCOTT
Santa Barbara, California

You can also display a bookmark's info dialog box by option–double-clicking the bookmark in the Bookmarks window. To change the name of a favorite in Microsoft Internet Explorer 4.X, press ⌘-I to bring up the Favorites window, select the favorite, and press ⌘-I to display the favorite's info dialog box.—L.P.



Eliminate Paragraph Rulers To eliminate all but the first paragraph ruler in Nisus Writer, set up the Find & Replace dialog box as shown here and click Replace All.

Get Rid of Excess Rulers

TIP Nisus Writer documents, especially those imported into Nisus Writer from other word-processing or desktop publishing applications, sometimes have excess paragraph rulers. You could laboriously select each unneeded ruler and delete it, but there is a simpler way to eliminate all but the first ruler. In the Find & Replace dialog box (⌘-F), switch to PowerFind mode, use the Special menu at the top of the dialog box to specify a return character as the text to find and as the text to replace, and click Replace All (see "Eliminate Paragraph Rulers"). The content of your document will not change, but all the paragraph rulers, save the first, will disappear.

SAM LYONS ELOWITCH
New York, New York

If you want to eliminate only some of the paragraph rulers, select the paragraphs with unwanted rulers and then in the Find & Replace dialog box, turn on the In Selection option before clicking Replace All.—L.P.

continues



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Transfer Files via CD

TIP When I finally gave up on my Performa 6200CD, I needed to move its files to my new blue G3. I could have used one of the three methods described in September 1999's *Quick Tips*, but my savvy dealer promptly burned the contents of my 1GB hard drive onto two CDs, which I used to easily and quickly transfer all required files to my new machine. As a bonus, the CDs give me a permanent archive of more than five years of accumulated files.

JOHN M. BONN
Toronto, Ontario, Canada

Andre van Toly of Amsterdam, Netherlands, found yet another method in Apple TIL article 22229 (http://til.info.apple.com/techinfo.nsf/artnum/n22229). With this method, you need only a standard telephone cable, a modem, and a little patience to connect your Performa to a G3's, or the iMac's, built-in 56-Kbps modem.—L.P.

Get a Grip

No need to mess with clear glue drops to orient a round mouse that doesn't have a dimpled button (as suggested in September 1999's *Quick Tips*). Al Tucker of Torrance, California, found a simpler solution at his local hardware store: ready-to-use soft plastic bumpers. They come in several sizes, and they are self-adhesive and completely clear. Just peel off their backing paper and stick 'em on, and you can tell by touch how to hold the mouse so it's pointing in the right direction. m

LON POOLE answers readers' questions and selects reader-submitted tips for this monthly column. He is a coauthor, with John Rizzo, of *The Little Network Book* (Peachpit Press, 1999).

All shareware and freeware mentioned in *Quick Tips* is available from the Macworld Online software library (www.macdownload.com).

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- ❑ 3. For myself as Consumer

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- ❑ 9. Computer Reseller/VAR/VAD/Service
- ❑ 10. Consulting
- ❑ 11. Education: K-12
- ❑ 12. Education: Higher Ed
- ❑ 13. Education: Other
- ❑ 14. Engineering/R&D
- ❑ 15. Gaming
- ❑ 16. Government/Military
- ❑ 17. Health/Medical Services
- ❑ 18. Legal Services
- ❑ 19. Manufacturing (Computer Industry)
- ❑ 20. Manufacturing (Non-Computer Industry)
- ❑ 21. Marketing Sales/PR/Communications
- ❑ 22. Printing/Publishing
- ❑ 23. Transportation
- ❑ 24. Utilities
- ❑ 25. Other_____

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- ❑ 28. Controller/Treasurer/Accounting/CFO
- ❑ 29. Corporate Executive
- ❑ 30. DP/IS Management/CIO
- ❑ 31. Editorial/Writing
- ❑ 32. Educator
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- ❑ 34. Human Resources
- ❑ 35. Management/Department Head
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- ❑ 39. Programming/Analysis
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- ❑ 41. Software Developer
- ❑ 42. Training
- ❑ 43. Other_____

WHAT IS THE SIZE OF YOUR ORGANIZATION?
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- ❑ 46. 100-499
- ❑ 47. 500-999
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WHICH PERSONAL COMPUTERS DO YOU USE? **(Check all that apply)**
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- ❑ 51. Macintosh Quadra Series
- ❑ 52. Macintosh Workgroup Series
- ❑ 53. PowerMac
- ❑ 54. iMac
- ❑ 55. PowerMac G3
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WHAT IS YOUR ROLE IN MAKING PURCHASES?
- ❑ 60. Final Decision Maker
- ❑ 61. Recommend Product or Vendor
- ❑ 62. Develop Specifications
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- **WB:** Desktop Publishing: The Big Picture
- **WC:** Creation of High Quality Photographic Web Content
- **WD:** Macintosh Network Administration with Apple Network Administrators Toolkit
- **WE:** The QuickTime™ Professionals Workshop
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- All international (including Canadian) attendees must pick up their badges on-site at the Attendee Will Call counter located in the North Hall Lobby of the Moscone Convention Center.
- On-Site Registration Hours: January 3 – 2:00pm-6:00pm
 January 4-7 – 8:00am-6:00pm
 January 8 – 8:00am-4:00pm

Get to Know PostScript

UNDERSTANDING WHAT MAKES DTP FLY

by David Blatner



Lots of people fly in airplanes, but few understand how aviation works. That's why many of us cling to erroneous ideas about flying, believing that air turbulence is dangerous, say, and can even cause an airplane to fall out of the sky. For these unfortunate travelers, ignorance is not bliss; it's the cause of unnecessary anxiety.

PostScript is what makes desktop publishing fly—it's the underlying structure on which many magazines, books, and newspapers are built. Sure, you can use QuarkXPress or Adobe InDesign without knowing anything about PostScript, just as you can fly without understanding the physics of lift. But knowing even a little about PostScript can go a long way: it can help you predict what's going to come out of your printer, saving you time and frustration. It can also help you troubleshoot problems. And with a smattering of PostScript, you can do a few tricks you may not have thought possible (see "Zap the Big White Box").

PostScript 101

PostScript is a programming language that describes text and graphics on a page. Its commands control where a laser printer (or any PostScript device) places a line of text, a circle, a Bézier curve, or a bitmapped image. Although you can easily write your own code (see "PostScript Unveiled"), few people actually write PostScript anymore; instead, programs such as Macromedia FreeHand, QuarkXPress, and Apple's LaserWriter driver write PostScript commands to a disk file and then send the file to the printer. The printer's interpreter reads the PostScript commands and converts them to marks on the page.

Adobe Systems originally wrote PostScript and licenses it, but many other companies have built interpreters that can read PostScript. Adobe has released three different versions over the years: PostScript, PostScript Level 2, and PostScript 3. While most imaging devices today can handle Level 2 commands, only newer printers can deal with PostScript 3 commands (including the ability to process native Adobe Acrobat PDF files and perform in-printer trapping). Ultimately, for the sake of compatibility with older devices, few programs and drivers take advantage of the higher-level commands available in Level 2 and PostScript 3.

Page-Building Basics

Knowing how PostScript builds pages is helpful in understanding how desktop publishing applications work—and why your output may not always look the way you expect it to. PostScript describes a page one object (a circle, some text, or whatever) at a time, with each object sitting on top of the previous objects. In QuarkXPress, you might create a text box that has a solid white background and the word *Macworld* in it. When you print, QuarkXPress and the LaserWriter driver together convert this image into PostScript: the PostScript file describes the rectangle, fills it with white, and then places the text on top of it. (If the text contains any type effects, such as kerning, PostScript may place the text one character at a time.)

There's a common myth that it takes longer to print a QuarkXPress page if your text boxes have a background of None. As this example shows, that's

continues

POSTSCRIPT UNVEILED

POSTSCRIPT LOOKS DIFFICULT, BUT IT'S ACTUALLY A PRETTY SIMPLE LANGUAGE. Because it's almost always just plain text, you can use any text editor to write or edit it (don't use a word processor such as Microsoft Word; it might add formatting). I often use Bare Bones Software's BBEdit (www.barebones.com) because it also lets you download PostScript to the printer quickly to see your results.

Here's a sample PostScript program that draws a series of boxes (you can type this code in or download it from www.macworld.com/1999/12/create/). Open any EPS file and you'll see something similar: an EPS file starts with all the procedures it's going to use and ends with the actual commands to make marks on a page. (EPS files don't include the **showpage** command, though.)

When you've finished writing your program, save it as a text file and download it to your printer. If you use BBEdit, you can choose Send PostScript from the Tools menu. Or you can use another utility, such as Adobe Font Downloader, to send the file.

1. Lines that begin with a percent sign are comments, and the interpreter ignores them. The one exception is this first line, which some interpreters require to inform them that the following file is PostScript.

2. A slash at the beginning of a line identifies a procedure that we'll use multiple times later in the program. Procedures are always defined inside curly brackets and end with **def**. We've called this procedure **drawbox** (but you can call procedures almost anything you want).

3. The program does all drawing on a giant grid, and there are generally 72 points per inch. Here, we set PostScript's virtual drawing tool to the (0, 0) coordinate; the program then draws a line 100 points to the right and 0 points vertically. Note that in PostScript, the values (in this case, coordinates) always come before the command. This is called putting values on the "stack."

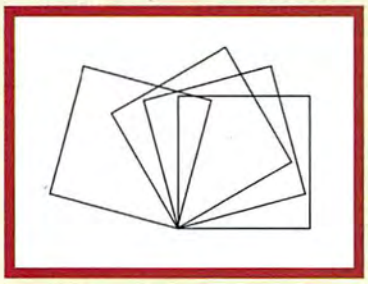
4. The **closepath** command makes the open-ended line into a closed box. The box doesn't actually appear until you stroke or fill it. In this case, **stroke** instructs the printer to paint the line with the default 1-point rule but not to fill the box.

5. The (0, 0) coordinate is usually at the lower-left corner of the page. The **translate** command tells the printer to move (0, 0) to a different coordinate—in this case, 250 points from the left edge of the paper and 350 points up from the bottom of the page. We've already specified a procedure, so we can call it by name anytime. The program draws the box.

6. Here, the whole coordinate grid system rotates 15 degrees and the program draws the box again. This way, you don't have to figure out new coordinates for the box's corners. In this case, each time you give the **rotate** command, the grid rotates further. The second time you give the **rotate** command, the grid rotates a total of 30 degrees, and so on.

7. The **showpage** command tells the imaging device to print the page. If you don't include the command, then the program draws the virtual page but no paper comes out of your device.

PostScript for Boxes



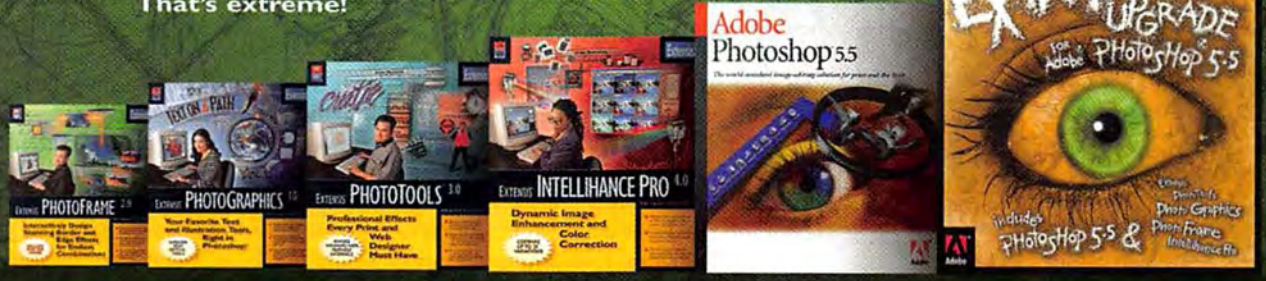
```
1 %!PS-Adobe-3.0
2 /drawbox {
    3 0 0 moveto
      100 0 lineto
      100 100 lineto
      0 100 lineto
    4 closepath stroke} def
5 250 350 translate
  drawbox
6 15 rotate
  drawbox
  15 rotate
  drawbox
  45 rotate
  drawbox
7 showpage
```



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EXMWNA010899

balderdash. If the text box were transparent rather than white, the only difference would be that the PostScript commands would not paint the box white before placing the text. Therefore, it's actually *faster* to print transparent text boxes, though the difference is only a fraction of a second.

PostScript is an *opaque imaging model*, which means that whatever you place on the page will totally cover what's beneath it. If you use PostScript to describe a 50 percent gray box on your page and then put a 20 percent gray box on top of it, you don't get a 70 percent gray box. Instead, you see only the 20 percent gray box. Whatever is on top takes precedence.

The fact that PostScript describes opaque objects also explains why there's no such thing as a *truly* transparent object in PostScript (although hopefully Adobe will address this limitation). If you place a soft drop shadow on top of something else in QuarkXPress, you can't see through the shadow because, again, whatever is on top entirely covers what's underneath. Any program that offers a transparency feature has to fake this effect when it prints your page.

Errors in Interpretation

A common incentive to learn PostScript is the alarming "PostScript Error" message that stops a print job dead in its tracks. PostScript is a very sensitive language; even a small error can wreak havoc on your page. For instance, a command called "lineto" draws a line from one page coordinate to another. If your computer makes an error when writing the PostScript code, it might write this command as "lneto." Because the interpreter won't know what this command means, it will respond with the "Undefined Command" error. Another common error, especially on older printers, is "Limitcheck," which occurs when some internal limit has been exceeded. For instance, old devices can't handle long, complex Bézier curves and may return a "Limitcheck" error if you don't simplify the shape.

To find out exactly what the error is when using QuarkXPress or Adobe PageMaker, turn on the error-handling feature in the Print dialog box. In other programs, you can choose Error Handling from the General pop-up menu in the Print dialog box (if you don't see this pop-up menu, you're using an older LaserWriter driver). Either way, you'll get a page that lists the offending command and the type of error. If it's an "Undefined Command" error, something's wrong with the print stream and your best bet is to send the job again. If you see "Limitcheck," you should try to simplify the file's contents.

The Future of PostScript

Although PostScript has long been at the core of desktop publishing, the industry is moving toward using Acrobat PDF as the standard imaging language. But there's life in the old language yet: because Adobe originally based the PDF specification on PostScript, knowledge of PostScript is very useful in understanding how Acrobat works, too. And it'll be years before PDF fully replaces PostScript. Until the majority of imaging devices can read native PDF files, these documents will still require translation (usually by a printer driver) into PostScript. **m**

DAVID BLATNER (david@moo.com) is a coauthor of *Real World Photoshop 5* (Peachpit Press, 1998) and a frequent speaker at seminars.

Zap the Big White Box

HERE'S A REAL-WORLD EXAMPLE OF HOW EDITING POSTSCRIPT CAN SIMPLIFY YOUR life. QuarkXPress 4.X creates EPS files slightly differently from how previous versions did: it always draws a white box behind your page. If you are compositing your EPS file on top of some other image and want the background transparent, you're out of luck—unless you can edit PostScript.

1. Open the EPS file in a text editor such as BBEdit (word processors like Microsoft Word can mess up the text by adding formatting).

2. Search for the line that reads **%%EndSetup**. Soon after it you'll see another line that reads something like **g np clippath 1 H V G calcbnd**.

3. The commands **g**, **np**, **H**, and so on are all procedures defined earlier in the file. Remove the characters **1 H V** and save the file again. Those three characters create that white box (the **1** is the color white; if you were to change this to **0**, the box would be black).

That's it—if you place the EPS file in another program, such as Photoshop, the preview won't be transparent, but when you print to a PostScript printer, the actual artwork will be.



Before... When you open or place a QuarkXPress 4.X EPS file in Photoshop (or any other program), it appears with a large white box behind it.



...and After By editing the PostScript codes in the EPS file, you can remove the white box to create a transparent graphic.

LEARN MORE ABOUT POSTSCRIPT

WEB SITES

Adobe's PostScript Page
www.adobe.com/prodindex/postscript/

The PostScript FAQ
www.postscript.org/FAQs/language/FAQ.html

BOOKS

PostScript Language Reference Manual
by Adobe Systems (Addison-Wesley, 1998; also available free in PDF format from the Adobe Web site)

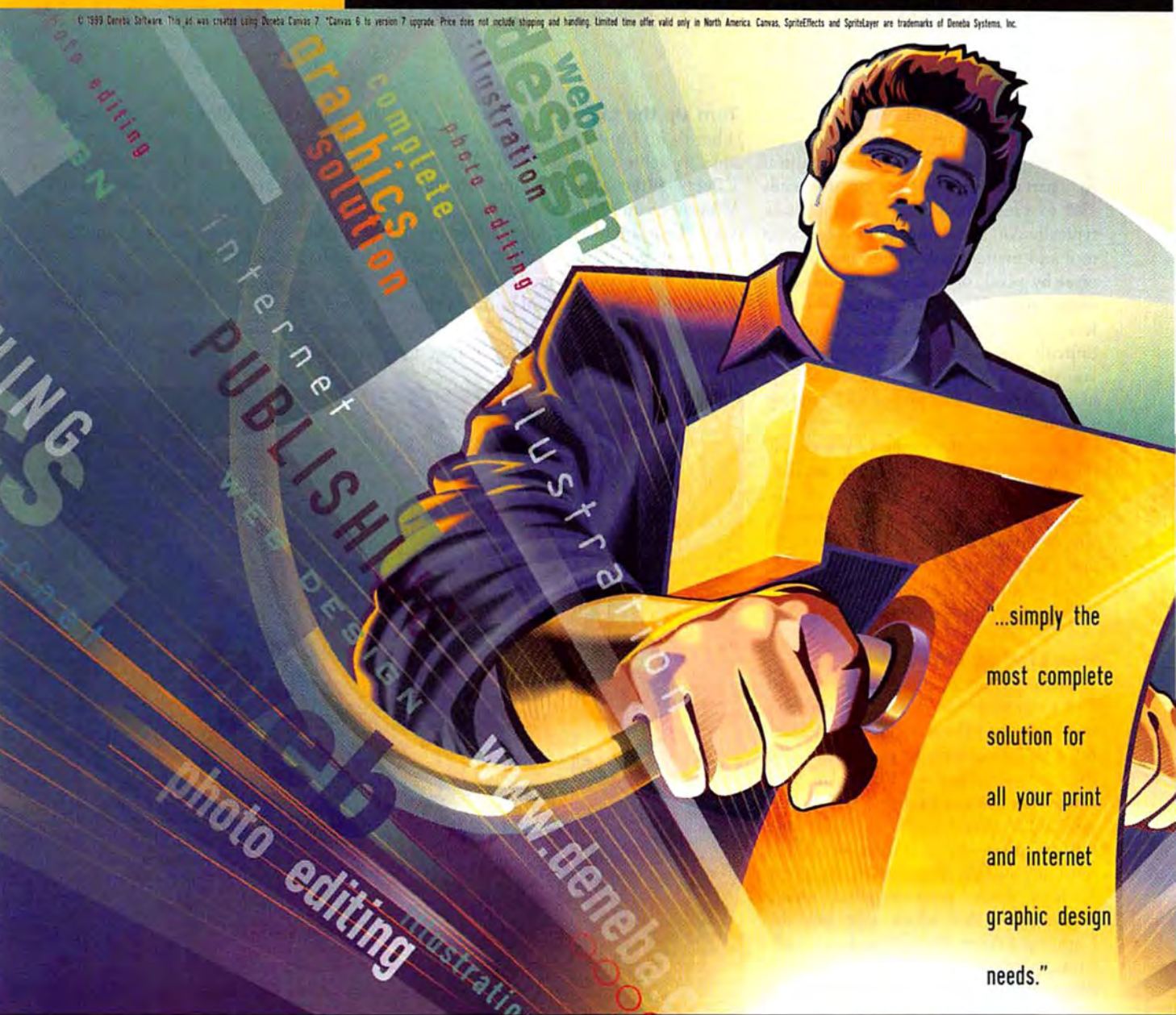
Learning PostScript: A Visual Approach
by Ross Smith (Peachpit Press, 1990)

Before Columbus, sailors stuck pretty much to the same old standard routes, fearing they would fall off the edge of the world and be eaten by sea monsters. Fortunately, Christopher didn't believe in "standards."

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GRAPHICS

Lights, Channel, Action

CREATE 3-D EFFECTS THE EASY WAY, WITH PHOTOSHOP'S LIGHTING EFFECTS FILTER

by Chris Lehan

Embossing an emblem or a texture into an image—and making the addition look as though it's a natural part of that image—is a task that tends to cause headaches. That's because typically you break out the rubber-stamp tool and meticulously clone the emblem pixel by pixel, or you play hit-and-miss with various filters until you get the perfect texture. But it doesn't have to be that difficult. It's possible to create the effect you want quickly and more accurately, using Adobe Photoshop's Lighting Effects filter.

You can use the Lighting Effects filter for much more than creating the illusion of light shining on an image. To produce any of a multitude of 3-D effects, simply create an image or a texture in any channel, apply that channel inside the Lighting Effects filter, and then incorporate it into another image.

How Lighting Effects Work

A texture channel is a special kind of alpha channel that you access through the Lighting Effects dialog box. Creating a texture channel is similar to using Photoshop's Emboss filter. In fact, when you use the Lighting Effects filter, you're doing essentially the same thing—embossing a texture or design onto an image. But unlike with the Emboss filter, your original image retains its color when you use the Lighting Effects filter. The black-and-white parts of the gray-scale channel dictate whether or not the image to which you're applying the texture will look raised or sunken.

You can create just about any kind of effect in the texture channel. For instance, you can draw with a painting tool, add noise, and apply a filter. You can also copy and paste an image from another document into the channel.

Turn Up the Lights

There's no limit to the effects you are able to achieve by using the Lighting Effects filter and an alpha channel. Whether you want to create an elaborate effect such as a logo added to a photo or you require a cool textured button for a Web page, the Lighting Effects filter can save you hours of time and effort.

To understand the basics of how to use this filter, follow the step-by-step example on the next page. Or try out the other projects on Macworld Online (www.macworld.com/1999/12/create/), which demonstrate making textured Web buttons, embossed text, and textured backgrounds. m

CHRIS LEHAN (clehan@aol.com) is a prepress manager as well as an Adobe Photoshop and HTML instructor in Minneapolis.



Emboss with Light

IT'S EASY TO INCORPORATE A TEXTURE or an image into an object if you use Photoshop's Lighting Effects filter—all you have to do is create a texture channel and then play with the lighting. Here's how to add a stamped-logo effect to an image of a bottle.





1 Start with the image of a bottle. If your image isn't in RGB mode, you have to convert it before using the Lighting Effects filter.

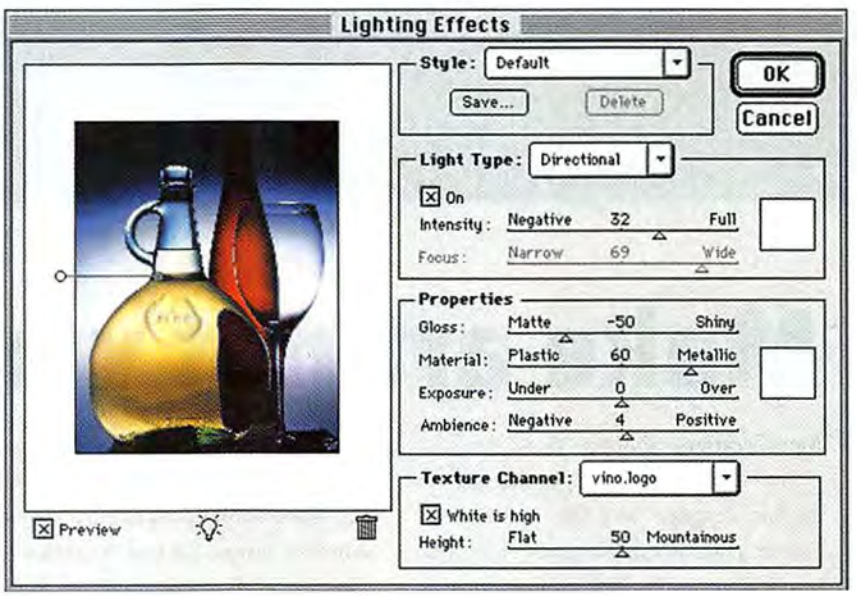
2 For the logo, create a circular shape in a new channel. If you want to give the logo a spherical shape, as in this example, apply the Polar Coordinates filter (Filter: Distort: Polar Coordinates). Use the Type Mask tool to set the text, and then position the text within the circular shape and fill it with white.

3 Now it's time to play with light. Go back to the composite channel, which has the original image in RGB mode. Open the Lighting Effects dialog box (Filter: Render: Lighting Effects), and select the texture channel you created in Step 2. After you select the channel, there are a couple of settings you can tinker with. If you select White Is High, the white parts of the channel will be raised from the surface of the color image. If you turn this option off, the dark parts of the channel will be raised. You can change the intensity of the effect with the Height slider. For instance, if you want the logo on the bottle to be a subtle effect, move the Height slider toward the Flat end. To make the logo stand out more, move the slider toward the Mountainous end.

Next, experiment with the Light Type settings: I used the Directional light type, because it gives the most evenly lit effect. You can add extra lights by clicking on the lightbulb icon and dragging it into the preview area. To duplicate a light, click on it and option-drag it within the preview window. If you need to remove a light, click on the center circle of the light and drag it to the trash-can icon at the bottom right of the preview window. If you want to adjust the color of a light, click on the color swatch at the right of the dialog box—doing so transports you to the Color Picker.

Once you get a light effect you like, make adjustments to the Properties settings. You'll get dramatic changes in brightness by moving the Exposure and Ambience sliders and see more-subtle changes with the Gloss and Material sliders. To change the color of the properties, click on the color swatch.

When you're finished, be sure to save your settings by clicking on the Save button at the top of the dialog box. You may want to use them again.





◀ Detail of the final image



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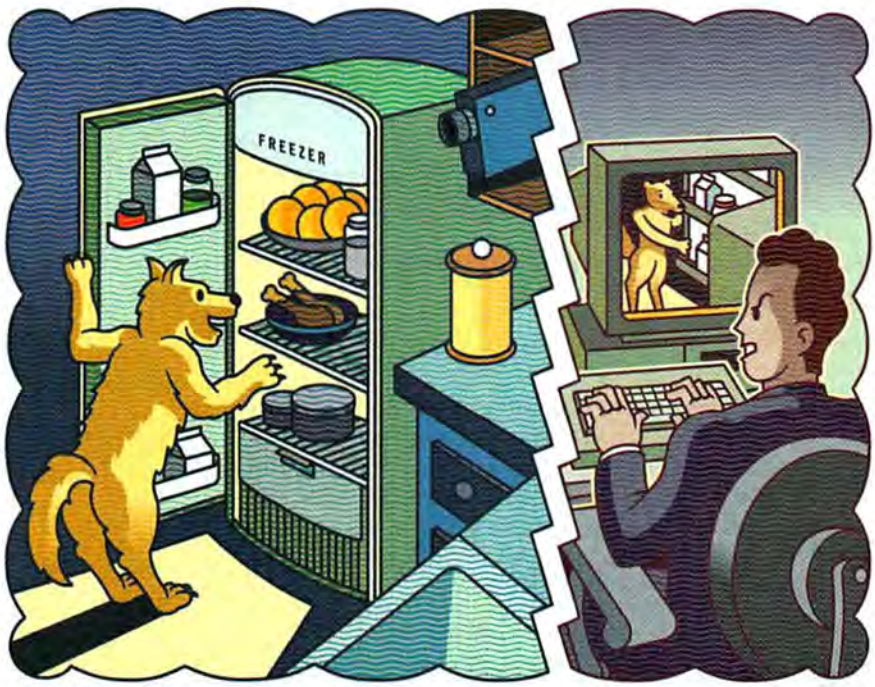
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A Web Cam of Your Own

HOW TO CREATE A WINDOW ON THE WORLD WIDE WEB

by Jim Heid



PETER HOEY

The Web cam was inspired by a coffeepot in England. Some caffeine-addled academics at Oxford were tired of climbing several flights of stairs only to discover an empty urn, so they connected a video camera to a computer and pointed the camera at their coffeemaker. The camera's image appeared on a Web page, enabling them to check on the java supply before hitting the stairwell.

The Web cam was born.

Today, thousands of Web cams all over the world are providing Web surfers with live or nearly live views of—well, you name it—offices, freeways, street scenes, construction sites, scenic vistas, child-care centers, and things we can't talk about in this magazine.

The Oxford academics cobbled together their system with bailing wire and duct tape. Today, you can create a Web cam with off-the-shelf hardware and software. You don't even have to have a continuous Internet connection—even if you connect through an ISP and a cranky modem, you can have a Web cam of your own.

Here's a guide to assembling a Web cam. As an extra-credit project, I also describe how you can add real-time weather information to your cam page in a sidebar on Macworld Online (www.macworld.com/1999/12/create/). And to prove that I practice what I preach, you can see my Web cam and weather page in action at www.heidsite.com/weather/.

A Cam and Some Ware

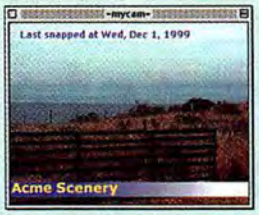
The Web-cam recipe calls for equal amounts of hardware and software. On the hardware side, you need a video camera to aim at your scene and video-capture hardware to bring the camera's images onto the Mac. Neither component need be expensive—you aren't seeking broadcast-quality video, after all.

If yours is a USB-equipped Mac and you don't yet have a video camera, consider a Logitech QuickCam VC (800/231-7717, www.quickcam.com) for around $80, which connects to a USB port and requires no additional capture hardware. If you already have a video camera, all you need is a USB capture device, which transforms the video into QuickTime format. Two such devices are Avid's (800/949-2843, www.avidcinema.com) Avid Cinema for Macintosh with USB, for about $300, and XLR8's (888/957-8867, www.xlr8.com) InterView, for around $100. (But don't buy an InterView until XLR8 updates its software drivers—the 1.01 drivers shipping at this writing are incompatible with Web-cam software.)

An older AV Mac also makes a fine Web-cam engine. Set up an elderly Mac as a dedicated Web-cam machine, and you avoid bogging down the performance of your current Mac with extra duties. I drive my cam with a Quadra 840AV, the likes of which often sell on eBay for about $150. (I paid a bit more when I bought mine new in 1993.)

Then there's Web-cam software, which does everything from snap images at regular intervals to create time-lapse movies that squeeze a day into a minute. Two Web-cam packages are available for the Mac OS: Rearden Technology's (510/523-2267, www.rearden.com) SiteCam, for about $150, and Poubelle Software's (www.poubelle.com/Oculus) Oculus, for $20 (shareware). SiteCam is my favorite—it isn't always as easy to use as Oculus, but

continues





SiteCam Secrets

WEB-CAM SOFTWARE LETS YOU CUSTOMIZE YOUR IMAGES. HERE'S A COLLECTION OF TIPS FOR USING REARDEN TECHNOLOGY'S SITECAM SOFTWARE TO DO JUST THAT.

CREATE CAPTIONS AND LOGOS. With SiteCam's captioning features, you can add the date and time and other information to your cam images.

You can also add a logo to the image: save your logo in PICT format and then use the Logo dialog box to control its position and how it blends with the cam image.

Caption Settings

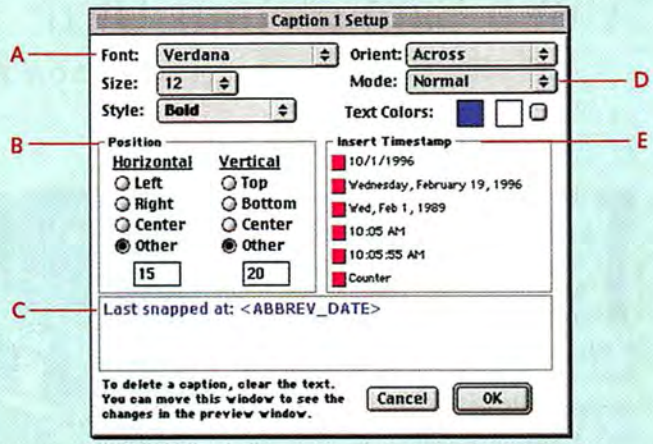
A Choose a font, size, style, and color combination that makes the caption stand out against your image.

B Specify the caption's location. The values are in pixels, measured from the top-left corner of the image. Use SiteCam's Preview window to check your work.

C Type the caption text here.

D The Mode pop-up menu controls how the caption appears: superimposed on top of the image, blended with it, or displayed with a colored background.

E To have SiteCam insert time and date values in a caption, click on the desired values.



CREATE A TIME-LAPSE MOVIE. SiteCam can assemble periodic captures into a time-lapse QuickTime movie.

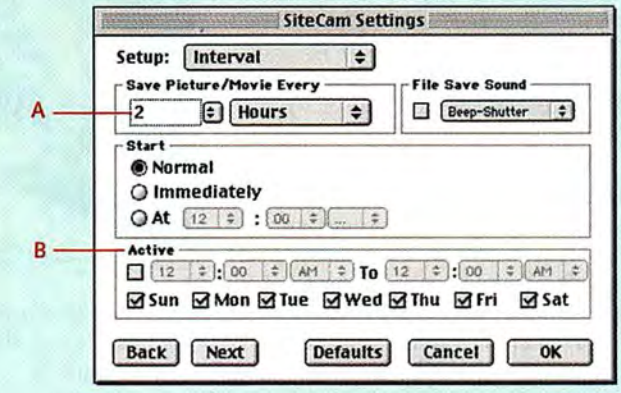
In the Output Format dialog box, choose QT Movie from the Media Format pop-up menu. In the Interval section of the SiteCam Settings dialog box, specify the interval at which you want SiteCam to save the movie. (For my cam page, I have SiteCam create a new movie every two hours.)

Interval Settings

A Specify how often SiteCam should create a new movie or grab a still image.

B Specify when the current document should be active. For outdoor scenes, you might configure this area so SiteCam doesn't snap images at night, when there's little to see.

continues on page 130



it's unique in providing a built-in Web server that can dish out live cam views (see *Reviews*, in this issue). I concentrate on SiteCam here, although many of the concepts I discuss apply to both programs.

Two Paths to a Cam

SiteCam provides several ways to set up a cam, and the path you take depends in part on the type of Internet connection you have. If you have a continuous Internet connection and a dedicated IP address, you can deliver a streaming-video view rather than a static shot. With streaming, visitors see a live, albeit jerky, view of your camera's subject—ideal for constantly changing scenes such as busy sidewalks or construction sites.

Do you have a continuous connection, but your scene doesn't change all that often? Set up SiteCam to grab just one image at the moment a visitor views the cam's page (see "SiteCam Secrets"). The visitor still sees an up-to-the-minute view, but you don't waste bandwidth by transmitting a live stream of a static scene.

Most big businesses and institutions have the kind of continuous connection I just described, but most homes don't. Modem connections and even most cable modems and DSL phone lines don't provide dedicated IP addresses. For a home-based cam, configure SiteCam to snap an image at regular intervals, and then use SiteCam's FTP features to send that image to your Web server.

How to Foil Hijackers

One disadvantage to the FTP approach is that it makes your cam image vulnerable to *hijacking:* some unscrupulous leech, eager to exploit your efforts, will include

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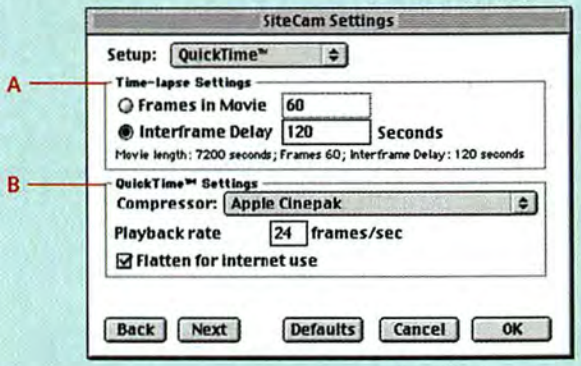
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Choose the Time-Lapse command from the Document menu and configure the dialog box as in the figure at left.



QuickTime Settings

A Use the Time-lapse Settings dialog box to specify how many frames are in the movie and how often SiteCam should snap a new frame. These values are interrelated: Change one, and the other changes as well. Both also relate to the duration value specified in the Interval dialog box. For example, for a movie saved every two hours, entering an Interframe Delay value of 120 (two minutes between each frame grab) yields a movie with 60 frames.

B The Apple Cinepak compressor yields small, smooth-playing movies and is compatible with all QuickTime versions. But each frame takes a second or so to compress, and this delay will probably be unacceptable if you're running SiteCam on the same machine that you work on. For faster compression, use the Photo-JPEG compressor.

Avoid creating a slow-downloading movie: specify a small image size, such as 160 by 120, in the Output Format dialog box.

THROTTLE A LIVE FEED. When delivering a streaming feed, you may want to conserve bandwidth or control how long a user can stay connected. Choose HTTP Server Settings from the Document menu and make the desired tweaks.



Server Settings

A To put a time limit on each visitor's live feed, check this box and enter a value. When the specified amount of time has elapsed, the live stream ends. This option prevents a visitor from wasting bandwidth by connecting to your cam page and then going home for the day.

B To control how many images a visitor receives each minute, check this box and enter a value. This can be a good way to prevent visitors with fast connections from using too much of your bandwidth.

C To control how many images all visitors to your page receive, check this box and enter a value.

D To restrict the number of images a visitor sees, check this box and enter a value. When your site has sent that number of images, the visitor has to reload the page to resume streaming.

your cam image in his or her Web page.

SiteCam has great antihijacking features, but to use them you must be running your own Web server—either SiteCam's built-in server or a WebStar-compatible server. If you're transferring images to an Internet provider using SiteCam's FTP mode, you can't use SiteCam's antihijacking features.

But take heart—you still have a weapon against hijackers. Simply change the name of your image file every week or two (don't forget to also update the relevant link in your cam's HTML page). Delete the older image file from your site, or better yet, replace it with another image—perhaps of some text encouraging viewers to go to *your* cam page.

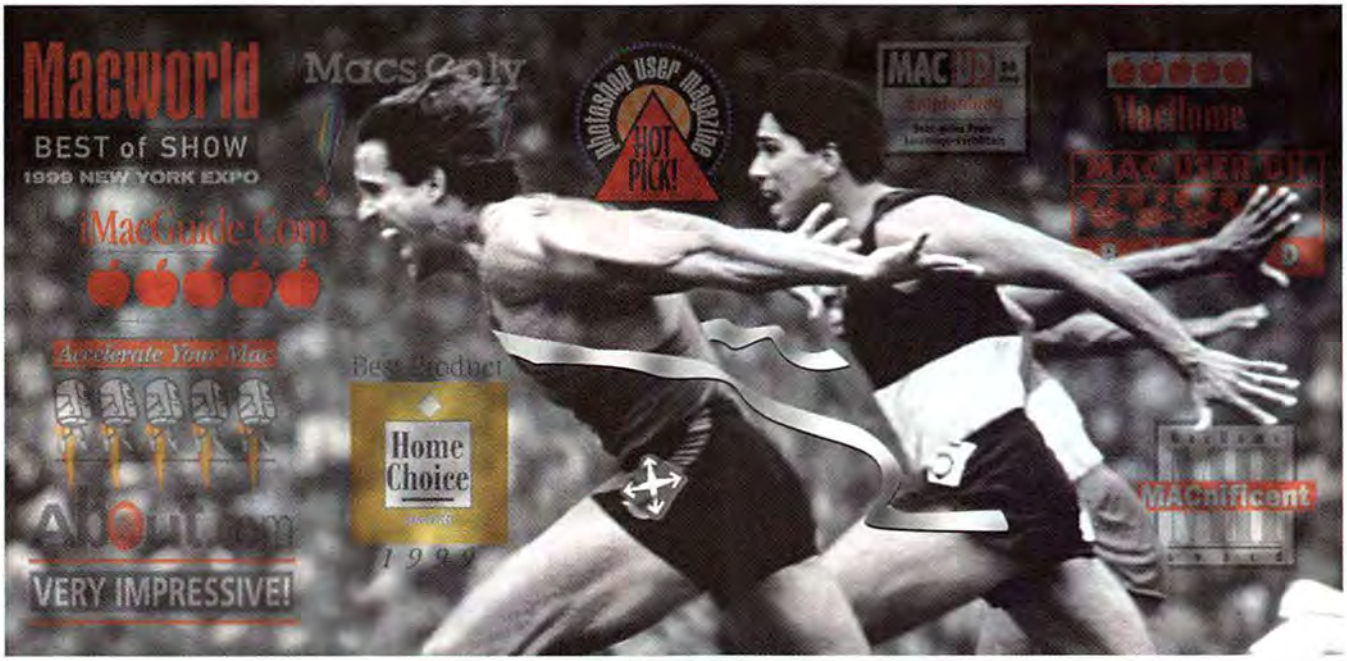
This technique makes your cam image a moving target, requiring hijackers to check your page often and update their pages accordingly. It doesn't prevent hijacking, but it definitely complicates your attackers' lives.

World Wide Web Cam

Sure, Web cams have practical applications: monitoring traffic or weather, checking on the kids at day care. But most of all, they're *fun*. Gazing at a live view of your home town, of a favorite vacation spot, of a place you've heard of but will never visit, of some stranger's cluttered cubicle—virtual journeys like these speak to the globe-shrinking immediacy of the Web, a medium that enables us to share a bit of ourselves, including the views from our windows. **m**

A contributor to *Macworld* since 1984, JIM HEID (www.heidsite.com) has been operating a Web cam from his Northern California home since 1996.

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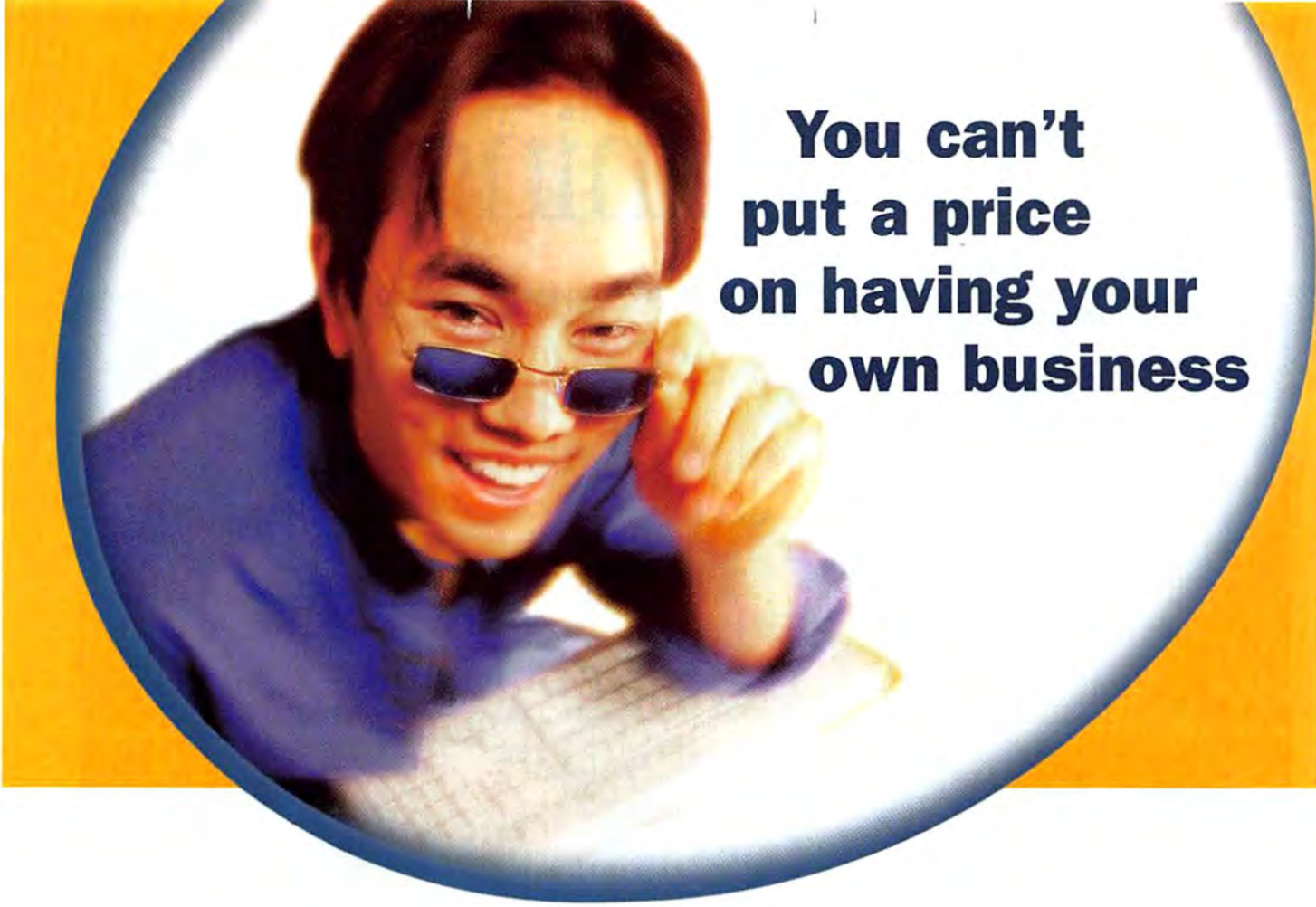
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400MHz iMac DV Models



Want to play movies or even make some of your own? An iMac DV model is your personal theatre for viewing DVD movies. And just connect your favorite DV camcorder to the FireWire port and use Apple's groundbreaking iMovie software to create your own digital movies. And iMac DV models include built-in video mirroring for making presentations!

#52496 Grape #52494 Tangerine #52493 Blueberry #52501 Lime

MHz	RAM	HD	DVD	Modem	Ethernet	Price
400	64MB	10GB	4X	56K	10/100BASE-T	$1,299

iMac DV Special Edition

For those who want a little more, there's the iMac DV Special Edition. It includes all the great features of the iMac DV models and it comes in a unique graphite color. Plus, it has twice the standard RAM and a larger hard drive than the iMac DV models.

Processor and Memory
- 400MHz Power PC G3 Processor
- 512K backside level 2 cache
- 100MHz system bus
- 128MB of SDRAM; two SODIMM slots support up to 512MB

Storage
- Internal 13GB Ultra ATA hard disk drive
- Internal 4X (maximum) DVD-ROM drive

Networking
- Built-in 56K V.90 modem
- Built-in 10/100BASE-T ethernet
- Supports AirPort wireless networking

Connectivity
- Two high speed Universal Serial Bus (USB) ports (12 Mbps), which support USB devices such as keyboard, mouse, printer, storage devices, and USB hubs
- Two 6-pin FireWire ports up to 400Mbps

Multimedia capabilities
- VGA video mirroring



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Order#	#51755	#51756	#51757
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RAM	64MB	128MB	256MB
Hard Drive	10GB	20GB	27GB
Multimedia	32X CD	DVD-ROM	DVD-RAM
Zip Drive	N/A	Yes	Yes
Modem	56K	56K	N/A
Price	$1,594	$2,494	$3,494
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Outrageous power.

- PowerPC G4 processor running at 400, 450 or 500MHz
- Velocity Engine vector processing unit
- Full 128-bit internal memory data paths
- Powerful new floating point unit
- Data stream prefetching operations supporting four simultaneous 32-bit data streams
- 1MB of backside level 2 cache running at half the processor speed
- 100MHz system bus
- 64, 128 or 256MB RAM
- Supports up to 1.5GB of high performance PC100 SDRAM
- 10, 20 or 27GB Ultra ATA hard disk
- 32X CD-ROM drive, DVD-ROM drive or DVD-RAM drive
- 100MB Zip drive (some configurations)
- Built-in 10/100BASE-T Ethernet networking; optional Gigabit Ethernet

Advanced capabilities.

- Two or three 400Mbps FireWire ports
- Two USB ports for keyboards, mice, printers—up to 127 devices at once
- Optional AirPort wireless networking card
- Two additional internal drive bays
- Three 64-bit PCI slots

Great graphics and video features.

- ATI RAGE 128 Graphics Accelerator with 16MB of SDRAM graphics memory
- Support for up to 1,600-by 1,200-pixel resolution at 32 bits per pixel (millions of colors) and up to 85Hz refresh rate
- Hardware acceleration of graphics and video
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333MHz iMac

● #46955 Blueberry ● #46954 Tangerine ● #42841 Strawberry ● #42842 Lime ● #42839 Grape

Processor and Memory
- 333MHz Power PC G3 Processor
- 512K backside level 2 cache on processor module
- 133MHz dedicated 64-bit backside bus
- 66MHz system bus
- Integrated floating-point unit and 64K on-chip level 1 cache (32K data and 32K instruction)
- 32MB of SDRAM; two SODIMM slots support up to 256MB
- 64-bit memory bus

Connectivity
- Two high speed Universal Serial Bus (USB) ports (12 Mbps), which support USB devices such as keyboard, mouse, printer, storage devices, and USB hubs

Storage
- Internal 6GB IDE hard disk drive
- Internal 24X (maximum) CD-ROM drive

Communications
- Built-in 10/100BASE-T Ethernet
- 56Kbps modem supports K56flex and V.90 standards

Multimedia Capabilities
- Incredible, high resolution display... MultiScan, tiltable shadow mask color display: 15-inch (13.8-inch diagonal viewable image size), .28mm dot pitch
- Supports millions of colors at up to 1024 x 768 resolution (24-bit)
- ATI RAGE PRO TURBO accelerated 2D/3D graphics controller and 6MB video memory
- Refresh rate of up to 117Hz
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- Built-in microphone
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- 3.2GB IDE hard disk drive
- Built in 24X CD-ROM drive

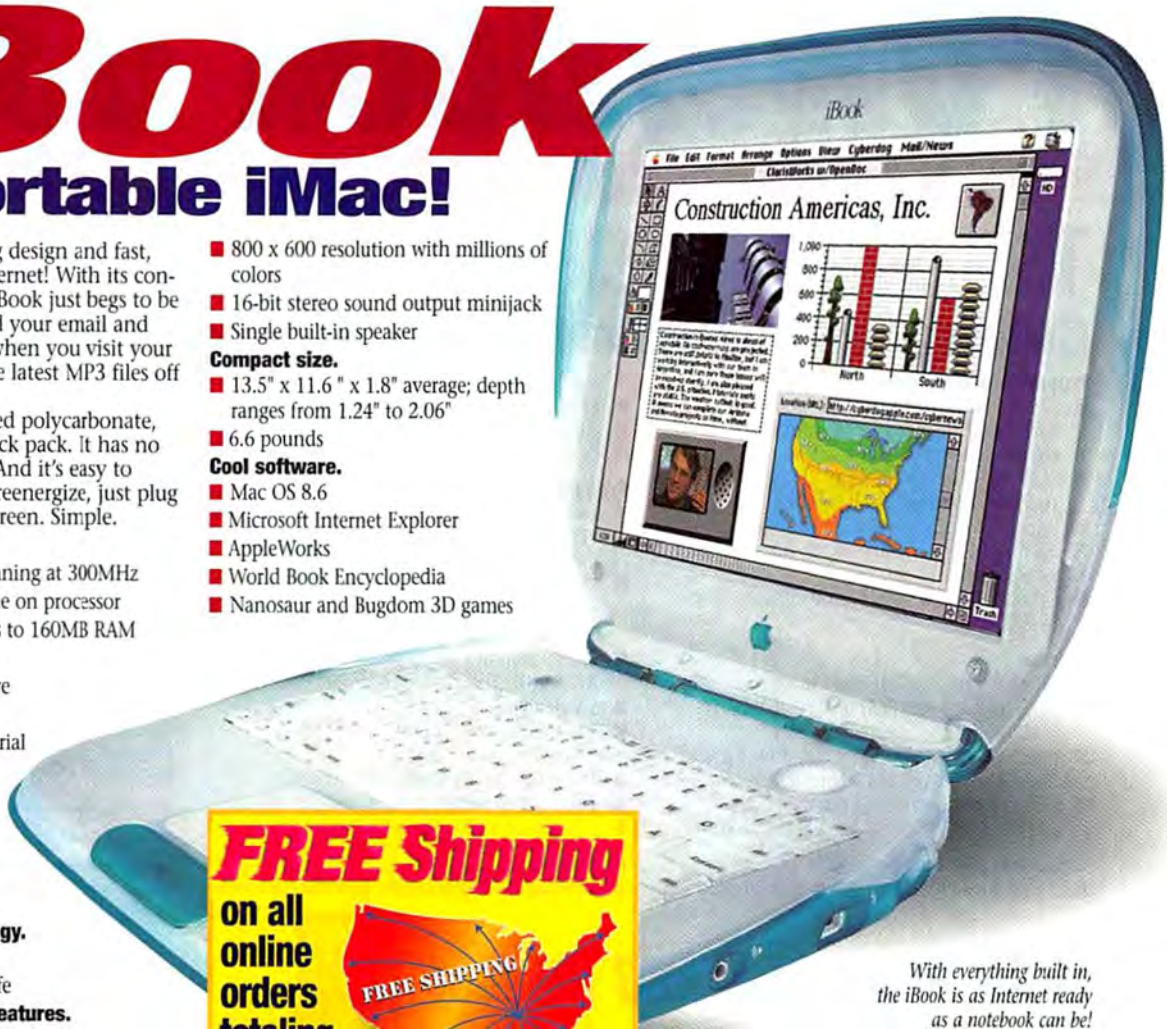
Connectivity.
- One 12-Mbps Universal Serial Bus (USB) port
- Built-in 10/100BASE-T Ethernet
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- Up to 6 hours of battery life

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- 16-bit stereo sound output minijack
- Single built-in speaker

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- 6.6 pounds

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- Microsoft Internet Explorer
- AppleWorks
- World Book Encyclopedia
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- 14.1 inch (diagonal) display features built-in TFT XGA active matrix display, supporting millions of colors at 1024 x 768 resolution
- 8MB SDRAM video memory; supports millions of colors on external displays up to 21"
- 2D/3D graphics, through integrated ATI RAGE LT Pro video controller
- S-Video port
- 24-bit video output port (VGA-style connector)
- 16-bit CD quality stereo input/output
- Two built-in stereo speakers
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Portability
- Kensington cable lock slot and keyboard lock
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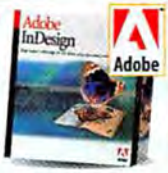
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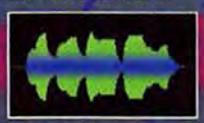
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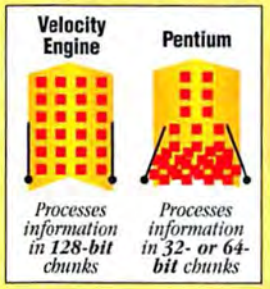


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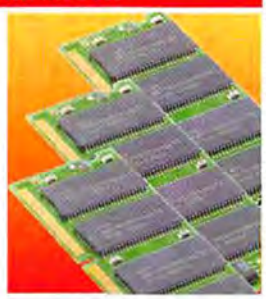
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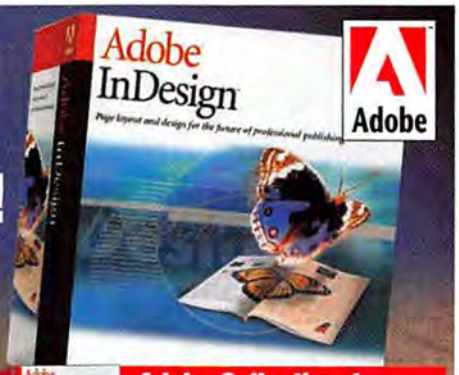
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APS I 9.1GB LVD 10K	10000	499.95	569.95
APS Q 9.1GB Ultra 160m LVD 10K	10000	469.95	539.95
APS ST 9.1GB LVD 10K	10000	499.95	569.95
APS I 18GB LVD	7200	599.95	669.95
APS Q 18GB Ultra 160m LVD	7200	649.95	719.95
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External Configuration

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APS Pro Enclosure

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External SCSI Configuration

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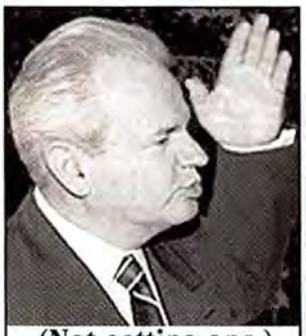
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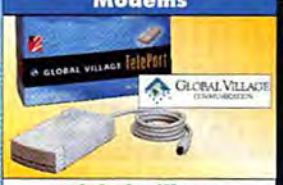
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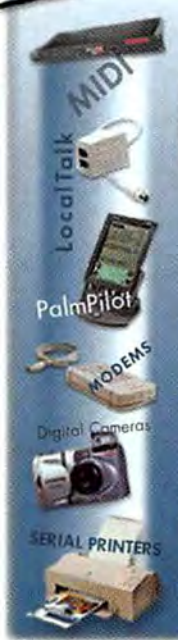
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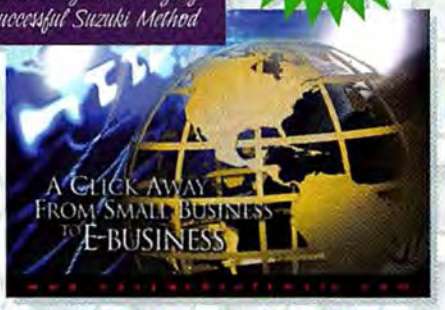
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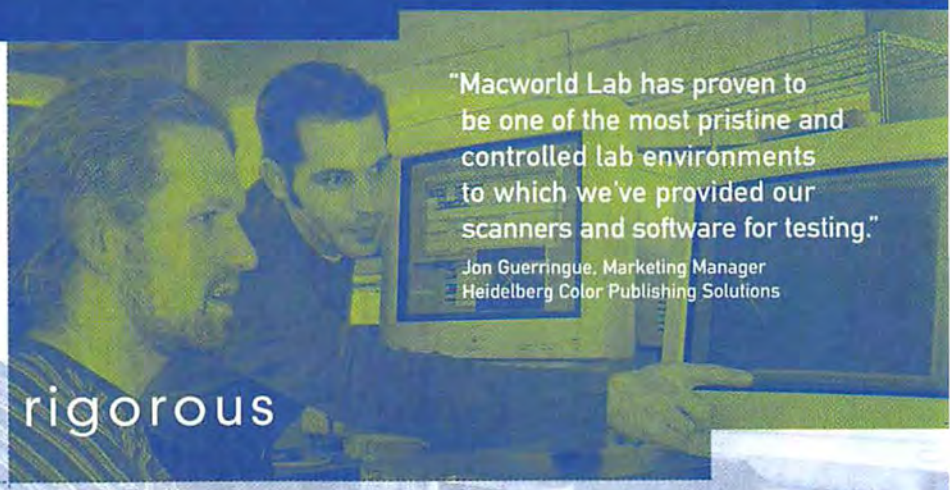
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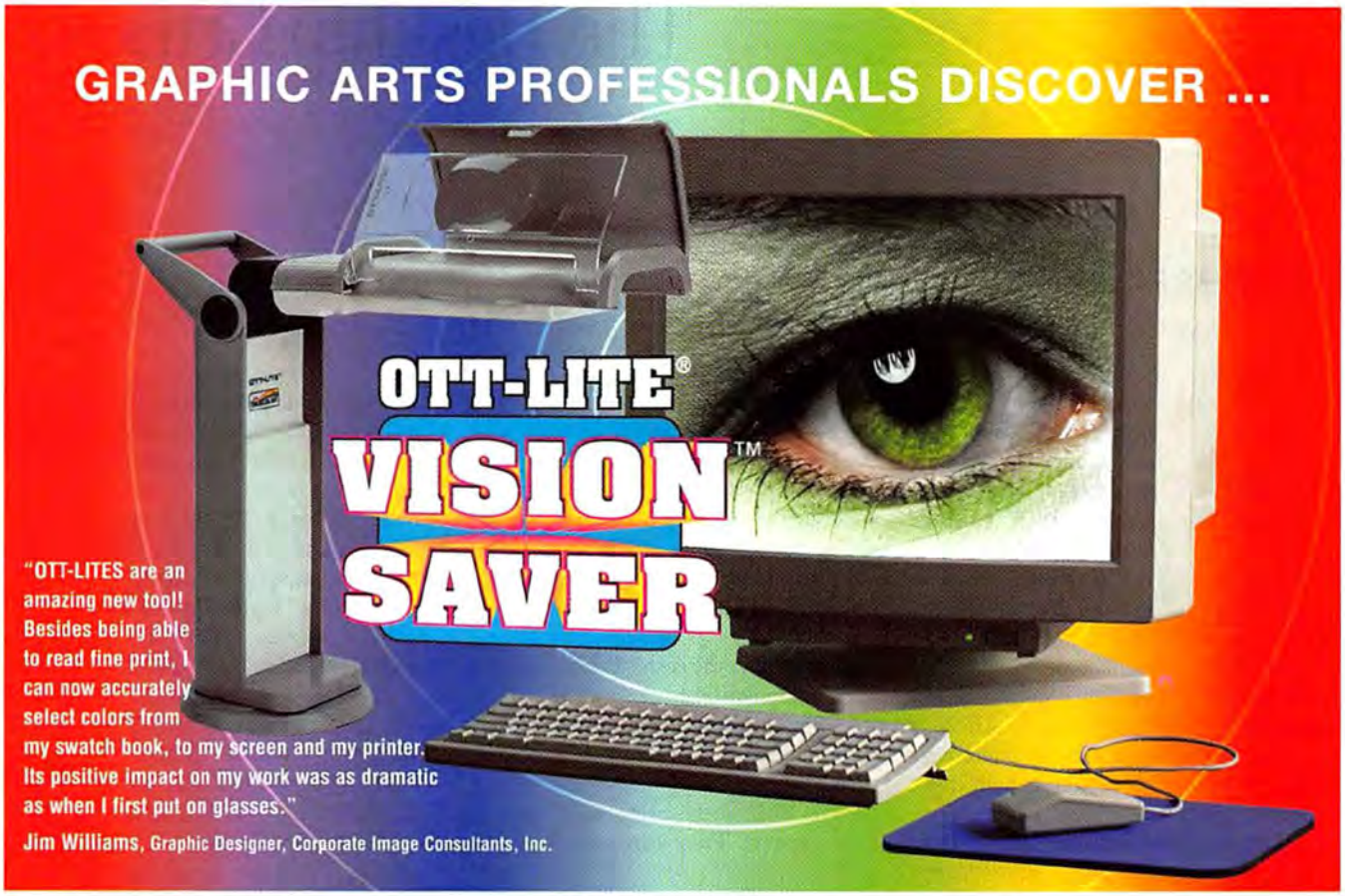


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The Desktop Critic

by David Pogue

Silicom as a Second Language

WHEN PLAIN ENGLISH ISN'T WORDY ENOUGH, INCENTIVIZE YOUR FORM FACTOR

EVER BEEN TO A COMPUTER trade show, such as Comdex, Seybold, or Macworld Expo? It's like visiting another world, traveling into a thrilling whirlwind of excitement, celebrity, and new technology. But as I eavesdropped on lunch-table conversations at the last Expo, I realized that these shows are like a different world in another way, too: the computer-industry people who attend them don't speak English.

Instead, after logging hundreds of hours of booth duty and attending dozens of meaningless meetings, all the while saying the same things over and over again, computer-industry salespeople, executives, and PR staffers have developed a strange, inflated form of bombast I call *Silicom*. (If you work in a corporation, you may already be familiar with its subdialects: Buzzword Meta-English and Dilbertese.)

You can think of Silicom as a sort of reverse shorthand: it requires *more* words to express a thought than English, thereby making the speaker feel as though each utterance has more import. In Silicom, you don't check the price; you check the "price point." A computer isn't fast; it has "enhanced performance." A laptop isn't small; it has a "compact form factor."

Of course, every profession has its jargon, but Silicom is sillier than most. Whereas doctors, musicians, and mechanics invent terms for concepts unique to their professions, computer-industry nerds merely *substitute* words for which perfectly good English equivalents already exist.

I can't help wondering if these people speak that way all the time. When the trade show ends, do they lapse back into plain English? Probably, otherwise their families would have them committed. But what if two of these people married? Now there's a thought—can you imagine what their everyday conversation would sound like? What would it be like at a backyard cookout thrown by a hardware engineer and a PR exec?

She: Hurry up with those burgers, honey. You're making their form factors way too big.

He: What's the rush? The form factor isn't mission critical.

She: Yes it is! New consumers are arriving onsite. They're going to grow the party.

He: Well, at this price point, what do they expect? They can chat with the installed base until the product ships.



She: How many units have you shipped so far?

He: Feels like 2K.

She: Well, we've got a bottleneck. We need a better enterprisewide solution. The end users look like thin clients.

He: Look, honey, I'm cooking them with as much performance as I can. If I downsize the patties any more, they'll be suboptimal.

She: I'm sorry, honey. I just want enough product to ensure a positive user experience.

He: Well, you're not going to incentivize me by standing here. Be proactive. Go consult the documentation for this grill. Maybe there's a methodology for upsizing the heat.

She: All right. In the meantime, the users can utilize the ketchup and pickles for more compelling content.

He: Oh, right—interactivity! I'd almost forgotten. That's the beauty of component-based food solutions.

She: Look, we can't wait 24/7. Why don't you ship this batch now? You know, a just-in-time delivery system.

He: They're still a little undercooked.

She: That's OK. We'll tell the consumers that, going forward, we're shifting to a new paradigm: beta burgers.

He: That's a real value proposition, sweetie. I'd put that implementation on the shortlist of your best ideas.

She: Just trying to improve the ROI on our R&D. And at the end of the day, if nobody eats the product, I can repurpose it for tomorrow night's meatloaf.

He: Now we're on the same page. Honey, you've positively impacted my day.

She: Food-service solutions has always been one of my best vertical markets.

He: I feel empowered to kiss you.

She: Oh, darling . . . Let's leave the consumer space. Are you up to a little functionality?

He: Yeah, baby . . . I'm feeling a powerful new media. Let's go upstairs and make a start-up.

She: Will you go cross-platform?

He: You know me, darling. I've got flexible standards. **m**

DAVID POGUE is the author of *Tales from the Tech Line* (Berkley Books, 1998). He'd like to incent readers to visit www.davidpogue.com.

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